ORDER NO. SD83012363C8

Service Manual

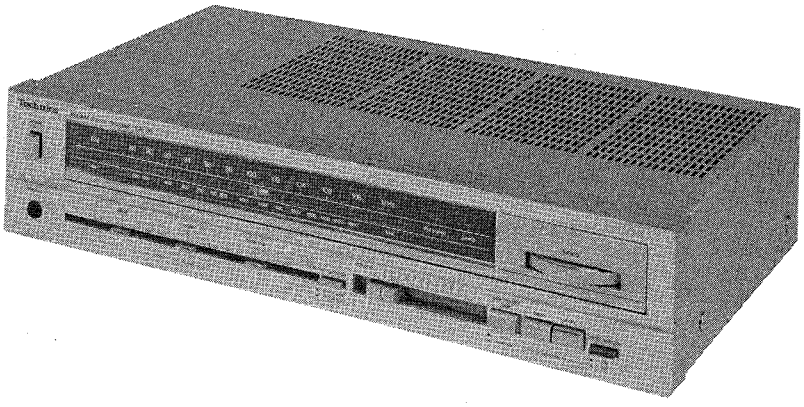
FM/AM Stereo Receiver

SA-110

[EX],[EH],[XA],[XL]

SA-110(K)

[EX],[EH]



* The colors of this model included silver and black.
* The black type model is provided with (K) in the Service Manual.

Areas

* [EX] is available in Switzerland and Scandinavia.
* [EH] is available in Holland.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [XL] is available in Australia.

Specifications

(Specifications are subject to change without notice for further improvement.)

(DIN 45 500)

■ AMPLIFIER SECTION

40 Hz~20 kHz continuous power output	
both channels driven	2 × 20W (4Ω)
	2 × 20W (8Ω)
40 Hz~16 kHz continuous power output	
both channels driven	2 × 20W (4Ω)
	2 × 20W (8Ω)
1 kHz continuous power output	
both channels driven	2 × 20W (4Ω)
	2 × 20W (8Ω)
Total harmonic distortion	
rated power at 40 Hz~20 kHz	0.8% (4Ω)
	0.5% (8Ω)
rated power at 40 Hz~16 kHz	0.8% (4Ω)
	0.5% (8Ω)
rated power at 1 kHz	0.5% (4Ω)
	0.5% (8Ω)
half power at 1 kHz	0.07% (8Ω)
−26 dB power at 1 kHz	0.1% (4Ω)
50 mW power at 1 kHz	0.12% (4Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz=4:1, 4Ω	0.8%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0.5%
Power bandwidth	
both channels driven, −3 dB	10 Hz~30 kHz (4Ω)
Damping factor	15 (4Ω), 30 (8Ω)
Input sensitivity and impedance	
PHONO	2.5 mV/47kΩ
TAPE/AUX	150 mV/18kΩ
PHONO maximum input voltage (1 kHz, RMS)	130 mV
Frequency response	
PHONO	RIAA standard curve
	±0.8 dB (30 Hz~15 kHz)
TAPE/AUX (at vol. max.)	5 Hz~70 kHz (−3 dB)
S/N	
rated power (4Ω)	
PHONO	70 dB (IHF, A: 73 dB)
TAPE/AUX	88 dB (IHF, A: 95 dB)
−26 dB power (4Ω)	
PHONO	64 dB
TAPE/AUX	66 dB
50 mW power (4Ω)	
PHONO	62 dB
TAPE/AUX	62 dB
Tone controls	
BASS	50 Hz, +10 dB~ −10 dB
TREBLE	20 kHz, +10 dB~ −10 dB
Loudness control (built in)	
volume at −30 dB	50 Hz, +5 dB
Output voltage and impedance	
TAPE REC OUT	150 mV
Channel balance, TAPE/AUX 250 Hz~6,300 Hz	±1 dB
Channel separation, TAPE/AUX 1 kHz	55 dB
Headphones output level and impedance	390 mV/330Ω
Load impedance	4Ω~16Ω

■ FM TUNER SECTION

Frequency range	87.5~108.0 MHz
Sensitivity	
S/N 30 dB	1.9 μV (300Ω), 1.3 μV (75Ω)
S/N 26 dB	1.7 μV (300Ω), 1.2 μV (75Ω)
S/N 20 dB	1.5 μV (300Ω), 0.9 μV (75Ω)
IHF usable sensitivity	1.9 μV (IHF '58)
IHF 46 dB stereo quieting sensitivity	22 μV/75Ω
Total harmonic distortion	
MONO	0.15%
STEREO	0.3%
S/N	
MONO	60 dB (76 dB, IHF)
STEREO	58 dB (70 dB, IHF)
Frequency response	20 Hz~15 kHz, +1 dB~ −2 dB

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Alternate channel selectivity (±400 kHz)	60 dB
Capture ratio	1 dB
Image rejection at 98 MHz	40 dB
IF rejection at 98 MHz	60 dB
Spurious response rejection at 98 MHz	70 dB
AM suppression	50 dB
Stereo separation	
1 kHz	40 dB
10 kHz	30 dB
Carrier leak	
19 kHz	−33 dB (−35 dB, IHF)
38 kHz	−50 dB (−50 dB, IHF)
Channel balance (250 Hz~6,300 Hz)	±1.5 dB
Limiting point	1.2 μV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	300Ω (balanced) 75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	525~1605 kHz
Sensitivity (S/N 20 dB)	20 μV, 300 μV/m
Selectivity	27 dB
Image rejection at 1,000 kHz	40 dB
IF rejection at 1,000 kHz	55 dB

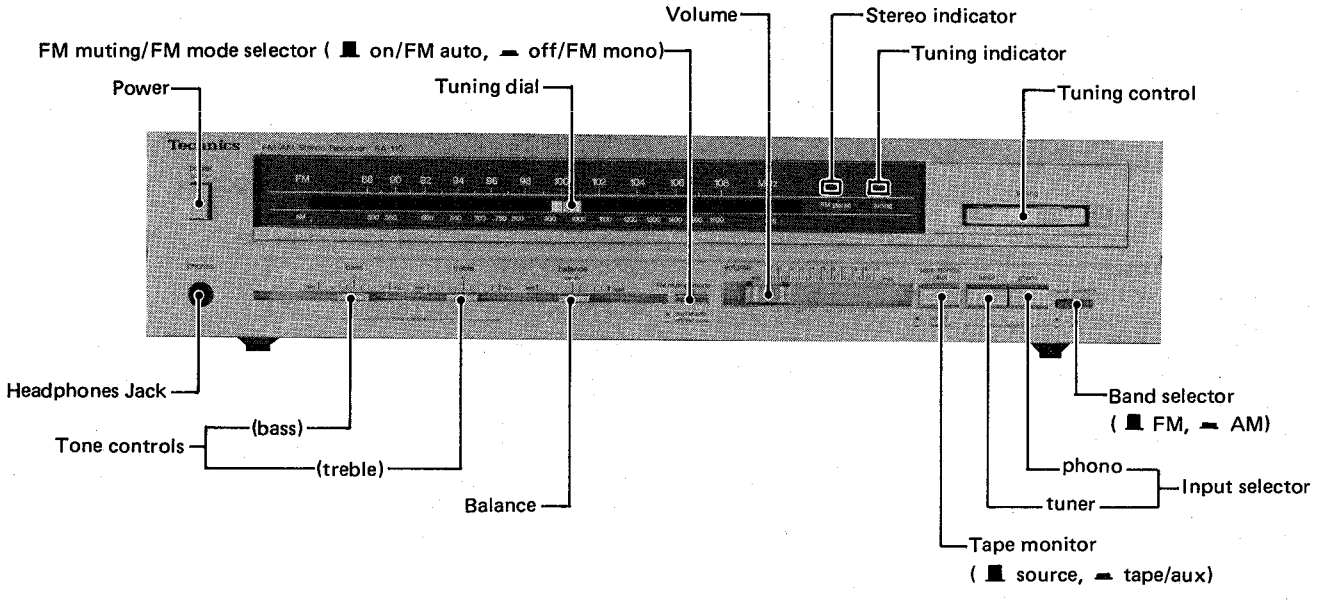
■ GENERAL

Power consumption	160W
Power supply	
For Australia	AC 50 Hz/60 Hz, 240V
For continental Europe	AC 50 Hz/60 Hz, 220V
For others	AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W×H×D)	430 × 97 × 243 mm (16-15/16" × 3-13/16" × 9-9/16")
Weight	4.9 kg (10.8 lb.)

■ CONTENTS

	Page
LOCATION OF CONTROLS	2 ~ 3
BEFORE REPAIR AND ADJUSTMENT	3
DISASSEMBLY INSTRUCTIONS	4 ~ 5
DIAL CORD INSTALLATION GUIDE	5
MEASUREMENTS AND ADJUSTMENTS	6 ~ 7
CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM	8 ~ 9
RESISTORS and CAPACITORS	10
BLOCK DIAGRAM	11 ~ 12
SCHEMATIC DIAGRAM	13 ~ 16
EXPLODED VIEW	17 ~ 18
REPLACEMENT PARTS LIST	19 ~ 20

■ LOCATION OF CONTROLS



ORDER NO. 83012363C8–A

FM/AM Stereo Receiver SA-110/SA-110(K)

ESPAÑOL

- This booklet contains the specifications and adjusting procedures for SA-110, written is Spanish.
- File this manual together with the SA-110 service manual (Order No. SD83012363C8).
- Este librito contiene la especificaciones y procedimientos de aduste para SA-110, escritos en español.
- Guardar este manual juntamente con el manual de servicio de SA-110 (Pedido No. SD83012363C8).

ESPAÑOL

■ ESPECIFICACIONES (Estas especificaciones estón sujetas a cualquier cambio sin previo eviso.)

(DIN 45 500)

■ SECCION AMPLIFICADOR

Potencia continua de 40 Hz~20 kHz	
en ambos canales	2 × 20W (4Ω)
	2 × 20W (8Ω)
Potencia continua de 40 Hz~16 kHz	
en ambos canales	2 × 20W (4Ω)
	2 × 20W (8Ω)
Potencia continua de 1 kHz	
en ambos canales	2 × 20W (4Ω)
	2 × 20W (8Ω)
Distorsión armónica total	
potencia de régimen a 40 Hz~20 kHz	0,8% (4Ω)
	0,5% (8Ω)
potencia de régimen a 40 Hz~16 kHz	0,8% (4Ω)
	0,5% (8Ω)
potencia de régimen a 1 kHz	0,5% (4Ω)
	0,5% (8Ω)
mitad de potencia a 1 kHz	0,07% (8Ω)
−26 dB de potencia a 1 kHz	0,1% (4Ω)
50 mW de potencia a 1 kHz	0,12% (4Ω)
Distorsión por intermodulación	
potencia de régimen a 250 Hz: 8 kHz=4:1, 4Ω	0,8%
potencia de régimen a 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0,5%
Ancho de banda de potencia	
con ambos canales, −3 dB	10 Hz~30 kHz (4Ω)
Factor de amortiguamiento	15 (4Ω), 30 (8Ω)
Sensibilidad e impedancia de entrada	
TOCADISC. (PHONO)	2,5 mV/47kΩ
TAPE/AUX. (TAPE/AUX)	150 mV/18kΩ
Voltaje máximo de entrada de PHONO (1 kHz, RMS)	130 mV
Relación de señal a ruido	
potencia de régimen (4Ω)	
TOCADISC. (PHONO)	70 dB (IHF, A: 73 dB)
GRAB./AUX (TAPE/AUX)	88 dB (IHF, A: 95 dB)
−26 dB de potencia (4Ω)	
TOCADISC. (PHONO)	64 dB
GRAB./AUX (TAPE/AUX)	66 dB
50 mW de potencia (4Ω)	
TOCADISC. (PHONO)	62 dB
GRAB./AUX (TAPE/AUX)	62 dB
Respuesta de frecuencia	
TOCADISC. (PHONO)	curva RIAA estándar ±0,8 dB (30 Hz~15 kHz)
GRAB./AUX (TAPE/AUX) (a vol. máx.)	5 Hz~70 kHz (−3 dB)
Controles de tono	
BAJOS (BASS)	50 Hz, +10 dB~ −10 dB
AGUDOS (TREBLE)	20 kHz, +10 dB~ −10 dB
Control de sonoridad (incorporado)	
volumen a −30 dB	50 Hz, +5 dB
Voltaje e impedancia de salida	
GRAB. SAL. GRAB.(TAPE REC OUT)	150 mV
Equilibrio de canales, TAPE/AUX 250 Hz~6 300 Hz	±1 dB
Separación de canales, TAPE/AUX 1 kHz	55 dB
Impedancia y nivel de salida de los auriculares	390 mV/330Ω
Impedancia de carga	4Ω~16Ω

■ SECCION PARA SINTONIZADOR FM

Gama de frecuencias	87,5~108,0 MHz
Sensibilidad	
Señal a ruido 30 dB	1,9 μV (300Ω), 1,3 μV (75Ω)
Señal a ruido 26 dB	1,7 μV (300Ω), 1,2 μV (75Ω)
Señal a ruido 20 dB	1,5 μV (300Ω), 0,9 μV (75Ω)
Sensibilidad utilizable IHF	1,9 μV (IHF '58)
Sensibilidad de acallamiento estéreo de 46 dB IHF	22 μV/75Ω
Distorsión armónica total	
MONO. (MONO)	0,15%
ESTEREO (STEREO)	0,3%
Relación de señal a ruido	
MONO. (MONO)	60 dB (76 dB, IHF)
ESTEREO (STEREO)	58 dB (70 dB, IHF)
Respuesta de frecuencia	20 Hz~15 kHz, +1 dB~ −2 dB
Selectividad alternada de canal (±400 kHz)	60 dB
Relación de captura	1 dB
Rechazo de imagen a 98 MHz	40 dB
Rechazo de F.I. a 98 MHz	60 dB
Rechazo de respuesta espuria a 98 MHz	70 dB
Supresión AM	50 dB
Separación estereofónica	
1 kHz	40 dB
10 kHz	30 dB
Fuga de onda portadora	
19 kHz	−33 dB (−35 dB, IHF)
38 kHz	−50 dB (−50 dB, IHF)
Equilibrio de canales 250 Hz~6 300 Hz	±1,5 dB
Punto de límite	1,2 μV
Ancho de banda	
Amplificador FI	180 kHz
Demodulador FM	1000 kHz
Bornes de antena	300Ω (equilibrado)
	75Ω (no equilibrado)

■ SECCION PARA SINTONIZADOR AM

Gama de frecuencias	525~1605 kHz
Sensibilidad (Relación de señal a ruido de 20 dB)	20 μV, 300 μV/m
Selectividad	27 dB
Rechazo de imagen a 1.000 kHz	40 dB
Rechazo de F.I. a 1.000 kHz	55 dB

■ GENERAL

Consumo de energía	160W
Alimentación de energía	
Para Australia	CA 50Hz/60Hz, 240V
Para Europa continental	CA 50 Hz/60 Hz, 220V
Para otros paises	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensiones (An.×Al.×Prof.)	430 × 97 × 243 mm
Peso	4,9 kg

■ MEDICIONES Y AJUSTES

Nota: La bobina de OSC AM (L201) y IFT AM (T202) ha sido ya ajustada y no requiere ajuste.

AJUSTE DE AM

*** Puesta y Uso de equido**

1. Voltimetros electronicos de CA y CC (VTVA).
2. Generador de señales AM (AM-SG)
3. Poner selector FM-AM en positión "AM".
4. Mantener voltaje de línea a voltaje nominal.
5. La salida de generador de señales no debe ser mayor que la necesaria para obtener una lectura de salida.
6. Para el ajuste use un destornillador no metálico.

Nº.	AM GENERADOR DE SEÑALES CONEXION	AM GENERADOR DE SEÑALES FRECUENCIA	PAESTA DE CUADRANTE	PREPARACIONES	PIEZAS AJUSTADAS	PROCEDIMIENTO DE AJUSTE
	AJUSTE RF-AM					
1	Conectar AM-SG a terminal de antena AM a través de capacitor 200pF refiriendo a Fig. 10 (Entrada débil)	600kHz (mod. 30% con 400Hz)	600kHz	Conectar VTVM de CA u osciloscopio a terminales de "SPEAKER" (altavoz).	L205 (Bobina ANT AM) L206 (Bobina OSC AM)	1. Ajustar para salida máxima.
2		1500kHz (Mod. 30% con 400Hz)	1500kHz	Conectar VTVM de CA u osciloscopio a terminales de "SPEAKER" (altavoz).	CT204 (Trimer de ANT AM) CT203 (Trimer de ANT AM)	1. Adjustar par salida máxima. 2. Repetir pasos (1) y (2) hasta que la frecuencia se adapte correctamente a la escala del cuadrante.

AJUSTE DE FM

*** Equipo usado**

1. Generador de señales FM (FM-SG)
2. Osciloscopio
3. Voltimetros electrónicos de CA y CC (VTVM).
4. Frequencimetro (19kHz y 108MHz medibles).
5. Poner selector FM-AM en posicion "FM".
6. Interruptor silenciador FM/modalidad FM ... off/mono FM
7. Otras puestas son las mismas que en ajuste AM.

*** Preparación de generador de señales FM (FM-SG)**

1. La entrada standard del aparato es 60dB (1mV), 400Hz, modulación 100% (Debido a atenuación, usando cables coaxiales La salida SG ha de ser 6dB más. Es decir, cuando la entrada 60dB, la salida de SG ha de ser 66dB.)

Nº.	FM GENERADOR DE SEÑALES CONEXION	FM GENERADOR DE SEÑALES FRECUENCIA	PAESTA DE CUADRANTE	PREPARACIONES	PIEZAS AJUSTADAS	PROCEDIMIENTO DE AJUSTE
	AJUSTE IF-FM					
3	Conectar SG-FM a terminal de antenna FM refiriendo a Fig. 11. (Aplicar 60dB a terminal de antena)	100MHz (Mod. 100% con 400Hz)	100MHz	Connector VTVM CC entre terminal TP201 y TP202 a través de bobina de choque. (Referira Fig. 11).	T201 (Discri. IFT)	1. Ajustar núcleo de T201 de manera que voltaje medido en modalidad de señal se 0mV en gama de 150mV.
	AJUSTE RF-FM					
4	Conectar SG-FM a terminal de antenna FM refiriendo a Fig. 11. (Aplicar 60dB a terminal de antena)	90MHz (Mod. 100% con 400Hz) (entrada débil)	90MHz	Conectar osciloscopio a terminal "speaker" (altavoz)	L204 (Bobina OSC FM) L202 (Bobina DET RF)	• Añadir entrada débil de manera que ruido se incluya en la forma de onda de salida. • Hacer el ajuste de manera que la forma de onda de salida sea verticalmente simétrica. (Fig. 13). • Repetir los pasos (4) y (5) hasta que la frecuencia se adapte correctamente a la escala del cuadrante.
5		106MHz (Mod. 100% (con 400Hz) (entrada débil)	106MHz	Conectar osciloscopio a terminal "speaker" (altavoz)	CT202 (Trimer de OSC) CT201 (Trimer de DET RF)	

AJUSTE DE V.C.O. MPX de FM

USANDO UN FREQUENCIMETRO	USANDO SISTEMA ALTERNATIVO
1. Señal mono no modulada de 100.10MHz 60dB aplicada al aparato. 2. Interruptor de modalidad/sinlenciador FM a "auto FM". 3. Conectar frecuéncimetro a TP301 a través de resistor (100kΩ). (Vea la Fig. 12.) 4. Ajustar VR301 a 19kHz ± 30Hz.	1. Aplicar una señal estereofónica al aparato o recibir una emisión estereofónica. 2. Ajustar VR301 y fijar el contacto deslizante de VR301 en el medio de la gama-ON del indicador estereofónico. (Vea la Fig. 14.)

6

- **Puntos de comprobación**

Circuito detector de sobrecarga

(1) Conectar carga 4 a terminal de altavoz.

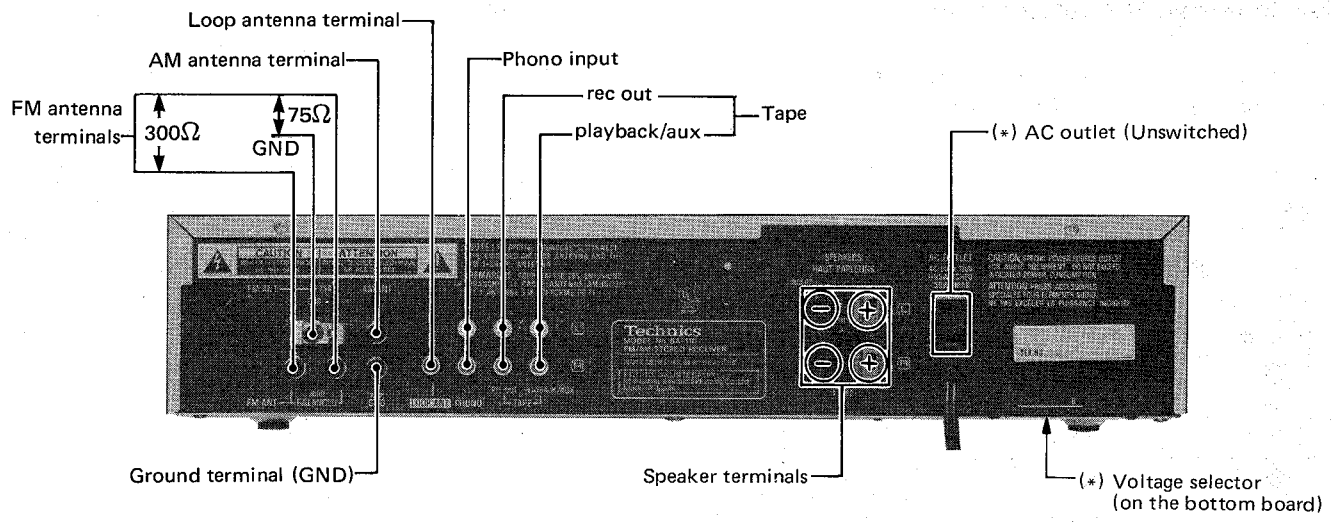
(2) Añadir señal de 1kHz del osciladorde baja frecuancia al aparato y ajustar la perilla de control de volumen de sonido de manera que el voltage de salida sea 5 voltios.

(3) Conectar carga 3,3Ω (2W) a terminal de altavoz.

(4) Asegurarse de que no se desarrolla salida.

*** Si el circuito de protección se pone en OFF debido a sobrecarga, el circuito y la carga no restaurarán su condición normal a no ser que se ponga en OFF una vez la fuente de alimentación y se ponga en ON otra vez.**

Printed in Japan
830104400 ®SH/TN



- The power supply for this unit varies depending upon the areas. Also, the parts used for power supply are different. So, refer to the circuit diagram and the replacement parts list.

* [XA] area is provided with voltage selector and AC outlet.
* 240V (50/60Hz) for Australia.
* 220V((50/60Hz) for Continental Europe.
* 110V/120V/220V/240V (50/60Hz) for other area. [XA] area.

■ BEFORE REPAIR AND ADJUSTMENT

Turn off the power supply and short-circuit both ends of power supply capacitors (C701, C702 4700μF) at resistance (about 10Ω, 5W) in order to discharge the charged voltage, Avoid short-circuit with a screwdriver or the like, otherwise the transistors or diodes may break down.
Before turning on the power supply after completion of repair, slowly apply the primary voltage by using a voltage regulator to make sure that the current consumed is free of abnormality. The current consumed at 50Hz/60Hz in no signal mode is shown below with respect to supply voltage 110/120V/220V/240V.

Power supply voltage		AC110V	AC120V	AC220V	AC240V
Current consumed	50 Hz	120 ~ 300mA	100 ~ 240mA	50 ~ 150mA	40 ~ 120mA
	60 Hz	120 ~ 260mA	100 ~ 240mA	50 ~ 150mA	40 ~ 120mA

■ DISASSEMBLY INSTRUCTIONS

• How to remove the cabinet

1. Remove the 6 setscrews (Fig. 1: ❶~❻) of the cabinet.

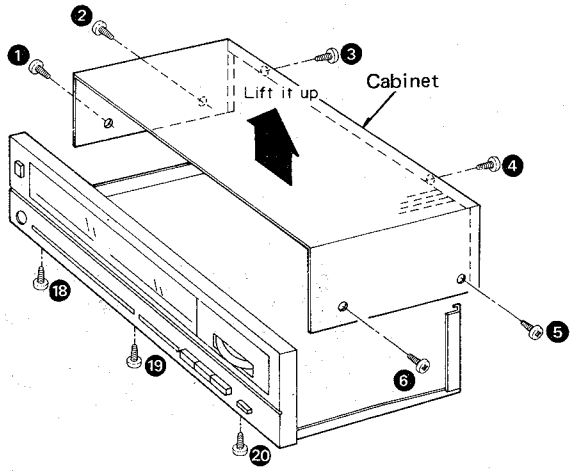


Fig. 1

• How to remove the bottom board

1. Remove the cabinet.
2. Remove the 11 setscrews (Fig. 2 : ❼ ~ ⓱) of the bottom board.

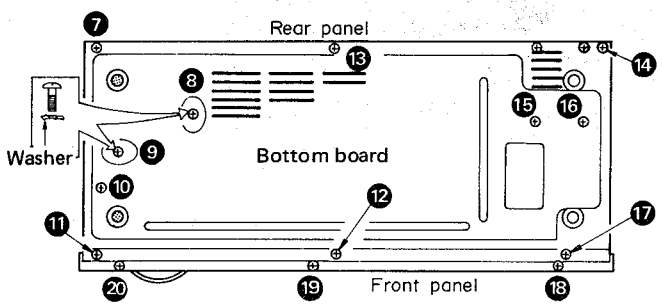


Fig. 2

• How to remove the front panel

1. Remove the cabinet.
2. Remove the 3 setscrews (Fig. 1: ⓲ ~ ⓴) of the front panel.
3. The claws projected (at 4 portions) from the front panel are engaged with the front sub-panel. Disengage the claws from by screwdriver or the like to remove the front sub-panel. (See Fig. 3)

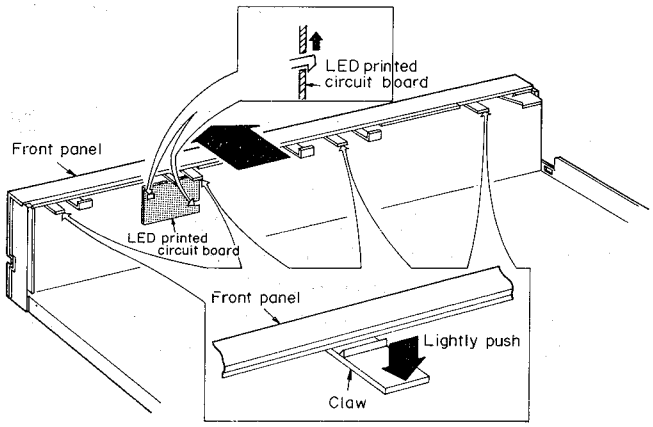


Fig. 3

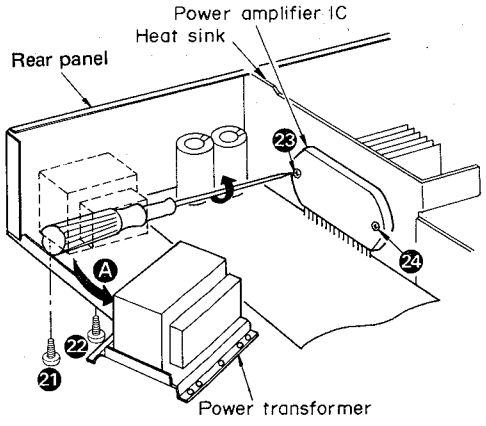


Fig. 4

• How to remove the power amplifier IC

1. Remove the cabinet and bottom board.
2. Remove the 2 setscrews (Fig. 4 : ㉑, ㉒) to detach the power transformer from rear panel in the direction of arrow Ⓐ.
3. Unsolder of power amplifier IC.
4. Remove the 2 setscrews (Fig. 4 : ㉓, ㉔) used to secure the power amplifier IC on the heat sink, and then pull the power amplifier IC.
5. When mounting the power amplifier IC, apply silicone compound or equivalent heat diffuser to the rear side of power amplifier IC, and then follow the steps 1 ~ 4 reversely.

- **How to remove the slide volume.**

1. Remove the cabinet and bottom board.
2. Set the dial pointer to the start position (minimum frequency), then stick a cellophane tape to the contact Ⓑ of dial cord (Fig. 5) so that the dial drum will not come loose from the dial cord.
3. Remove the 1 setscrew (Fig. 5 : ㉕) from the Dial drum.
4. Remove the dial cord from the pulley. (Fig. 5 : Ⓒ)
5. Remove the 3 setscrews (Fig. 6 : ㉖ ~ ㉘) and 2 connectors (Fig. 6 : ㉙, ㉚)
6. Remove the front panel in the direction of the arrow as in Fig 7.
7. The claws projected (at 4 portions) from the slide printed circuit board are engaged with the slide volume. Disengage the claws from by screw driver or the like to remove the slide volume case. (Fig. 8)
8. Unsolder the slide volume.

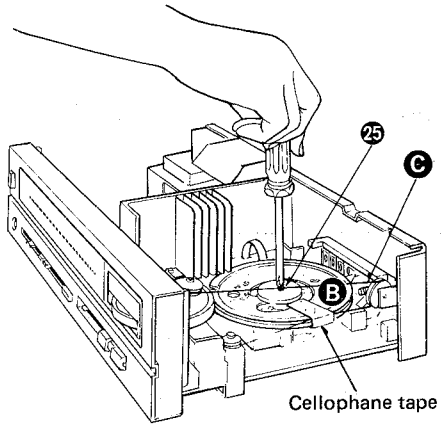


Fig. 5

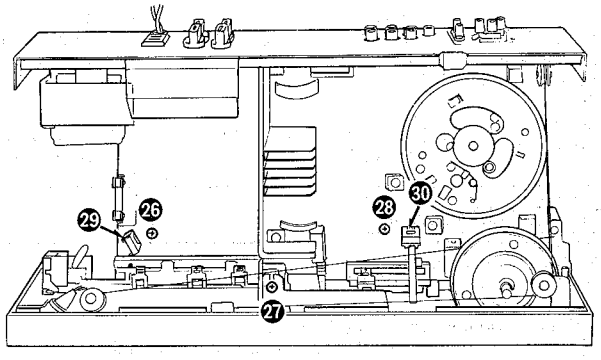


Fig. 6

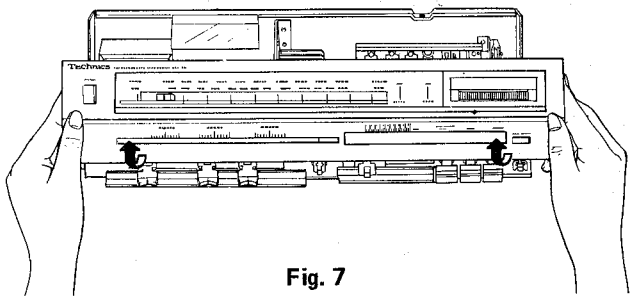


Fig. 7

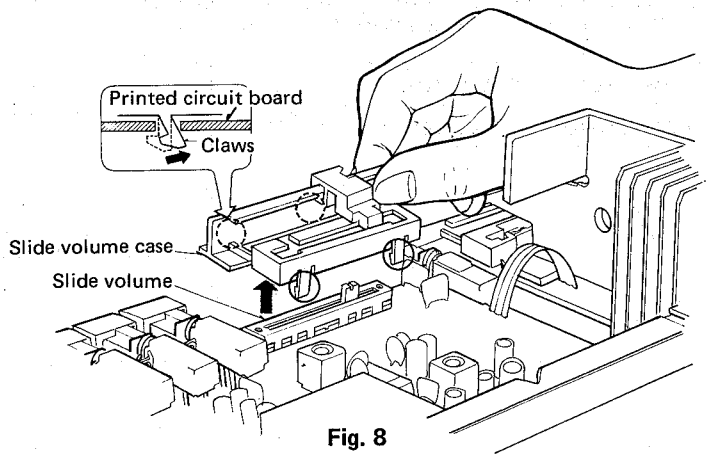


Fig. 8

■ DIAL CORD INSTALLATION GUIDE

- **When setting the cord, follow the procedure given below**

1. The cord should be at least 180 cm long.
2. Completely turn the tuning gang (variable capacitor) counterclockwise. (Variable condenser capacity: max. Frequency; min.)
3. Make a knot at the cord and as shown in Fig. 9.
4. Set the spring to the knot, and set the cord in the order of 1 ~ 11.

Note: At step 8, pull the cord strongly, slacken the spring up to the mark of the durm, then go to steps 9 ~ 11 to set the cord.

5. Fix the cord terminal with adhesive.
6. Cut off the cord about 5 mm at its either end.

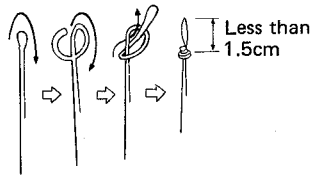
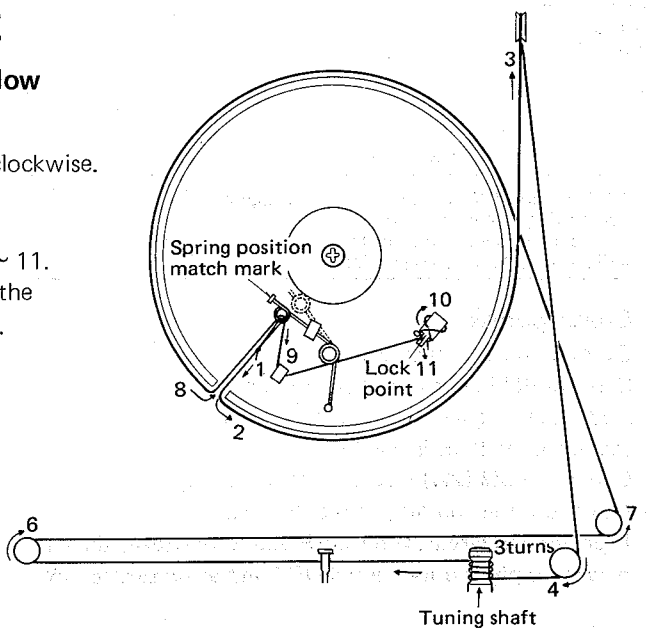


Fig. 9



■ MEASUREMENTS AND ADJUSTMENTS

Note: AM OSC Coil (L201) and AM IFT (T202) have been already adjusted, and require no adjustment.

AM ADJUSTMENT

*** Setting and Equipment used**

1. AC electronic voltmeters (VTVM)
2. AM signal generator (AM-SG)
3. Set Band selector to "AM" position.
4. Maintain line voltage at 120 volts.
5. Output of signal generator should be no higher than necessary to obtain an output reading.
6. Use a non-metal screwdriver for the adjustment.

Step No.	AM SIGNAL GENERATOR CONNECTION	AM SIGNAL GENERATOR FREQUENCY	DIAL SETTING	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
	AM-RF ADJUSTMENT					
1	Connect AM-SG to AM antenna terminal through 200pF capacitor referring to Fig. 10. (Weak input)	600kHz (30% Mod. with 400Hz)	600kHz	Connect AC VTVM or scope to "speaker" terminal of the set.	L205 (ANT Coil) L206 (OSC Coil)	1. Adjust for maximum output.
2		1500kHz (30% Mod. with 400Hz)	1500kHz	Connect AC VTVM or scope to "speaker" terminal of the set.	CT204 (OSC Trimmer) CT203 (ANT Trimmer)	1. Adjust for maximum output. 2. Repeat steps (1) and (2).

FM ADJUSTMENT

*** Setting and Equipment used**

1. FM signal generator (FM-SG)
2. Oscilloscope.
3. DC electronic voltmeters (VTVM).
4. Frequency counter (19kHz and 108MHz measurable).
5. Set band selector to "FM" position.
6. FM muting/FM mode switch ... off/FM mono.
7. Other setting are the same as in AM adjustment.

*** FM signal generator (FM-SG)**

1. The standard input of the set is 60dB (1mV), 400Hz 100% modulation (Because of attenuation, using coaxial cables, SG output must be 6dB Plus. That is, when input is 60dB, SG output is to be 66dB.)

Step No.	FM SIGNAL GENERATOR CONNECTION	FM SIGNAL GENERATOR FREQUENCY	DIAL SETTING	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
	FM IF ADJUSTMENT					
3	Connect FM-SG to FM antenna terminal referring to Fig. 11 (Apply 60dB to antenna terminal)	100MHz (100% Mod. with 400Hz)	100MHz	Connect DC VTVM to between TP201 and TP202 through choke coil (Refer to Fig. 11.)	T201 (Discri. IFT)	1. Adjust T201 core so that voltage measured in signal mode is 0mV in 150mV range.
	FM-RF ADJUSTMENT			*** Connect TP201 and TP202**		
4	Connect FM-SG to FM antenna terminal referring to Fig. 11 (Apply 60dB to antenna terminal)	90MHz (100% Mod. with 400Hz) weak input	90 MHz	Connect scope to "speaker" terminal	L204 (OSC Coil) L202 (RF DET Coil)	• Add weak input so that noise is included in the output waveform. • Make the adjustment so that the output wave form is vertically symmetrical. (Fig. 13) • Repeat the steps (4) and (5) until the frequency correctly matches the dial scale.
5		106MHz (100% Mod. with 400Hz) weak input.	106 MHz	Connect scope to "speaker" terminal	CT202 (OSC Trimmer) CT201 (RF DET Coil)	
	FM MPX V.C.O. ADJUSTMENT					
	USING A FREQUENCY COUNTER			USING ALTERNATE SYSTEM		
6	1. 100MHz 60dB Non-modulated mono signal applied to set. 2. FM muting/FM mode switch to "on/FM auto". 3. Connect frequency counter to TP301 through resistor (100kΩ). 4. Adjust VR301 to 19kHz ± 30 Hz. (Fig. 12)			1. Apply stereo signal from generator or stereo station to tuner. 2. Adjust **VR301** until stereo indicator lights up. Cement arm of **VR301** as shown in Fig. 14.		

- **Check points**

Overload detection circuit

① Connect 4Ω load to speaker terminal.

② Add 1kHz signal from the low frequency oscillator to the set and adjust the sound volume control knob so that the output voltage is 5 volts.

③ Connect 3.3Ω (2W) load to speaker terminal.

④ Make sure that no output is delivered.

* **If protection circuit turns OFF due to overload, the circuit and load will not restore their normal conditions unless power supply is once turned OFF and again turned ON.**

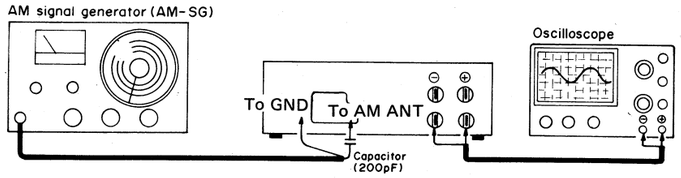


Fig. 10

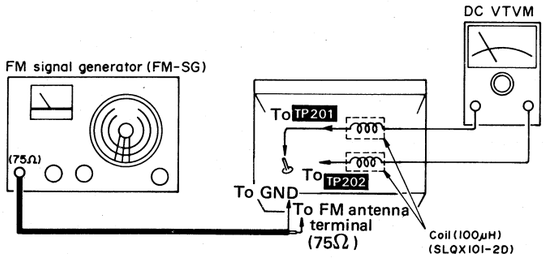


Fig. 11

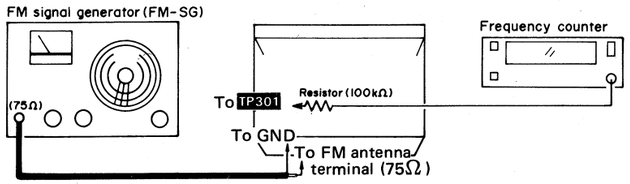
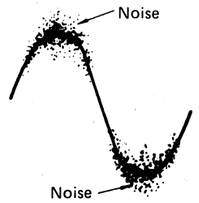
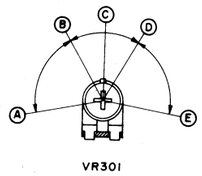


Fig. 12



AF output wave form

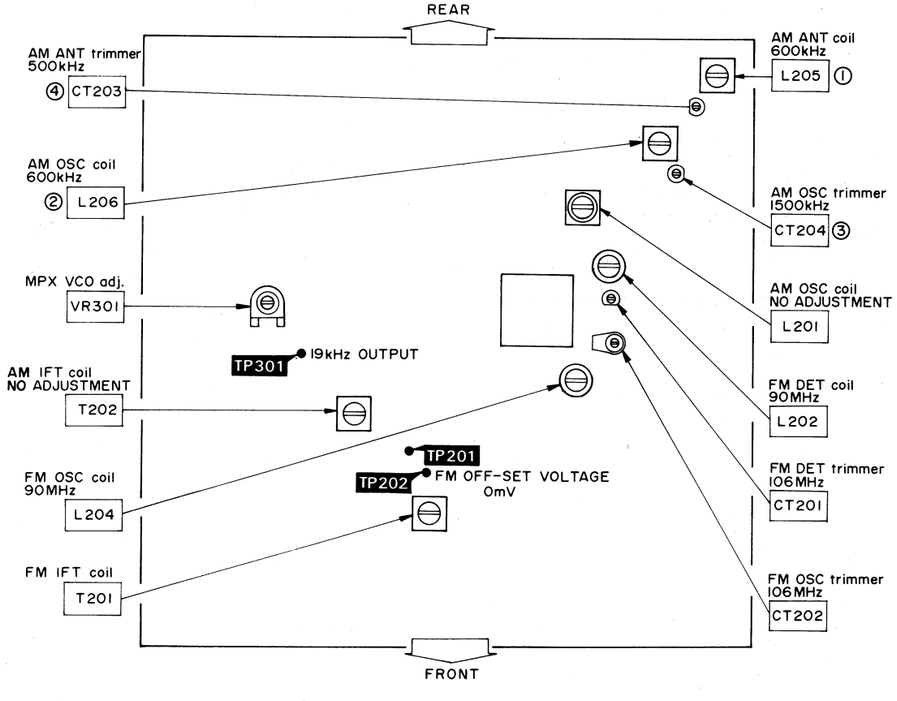
Fig. 13



A–B, D–E: Stereo OFF Position.
B–D: Stereo ON Position. (indicator Lighting)
C: Adjust Point of Pilot Circuit.

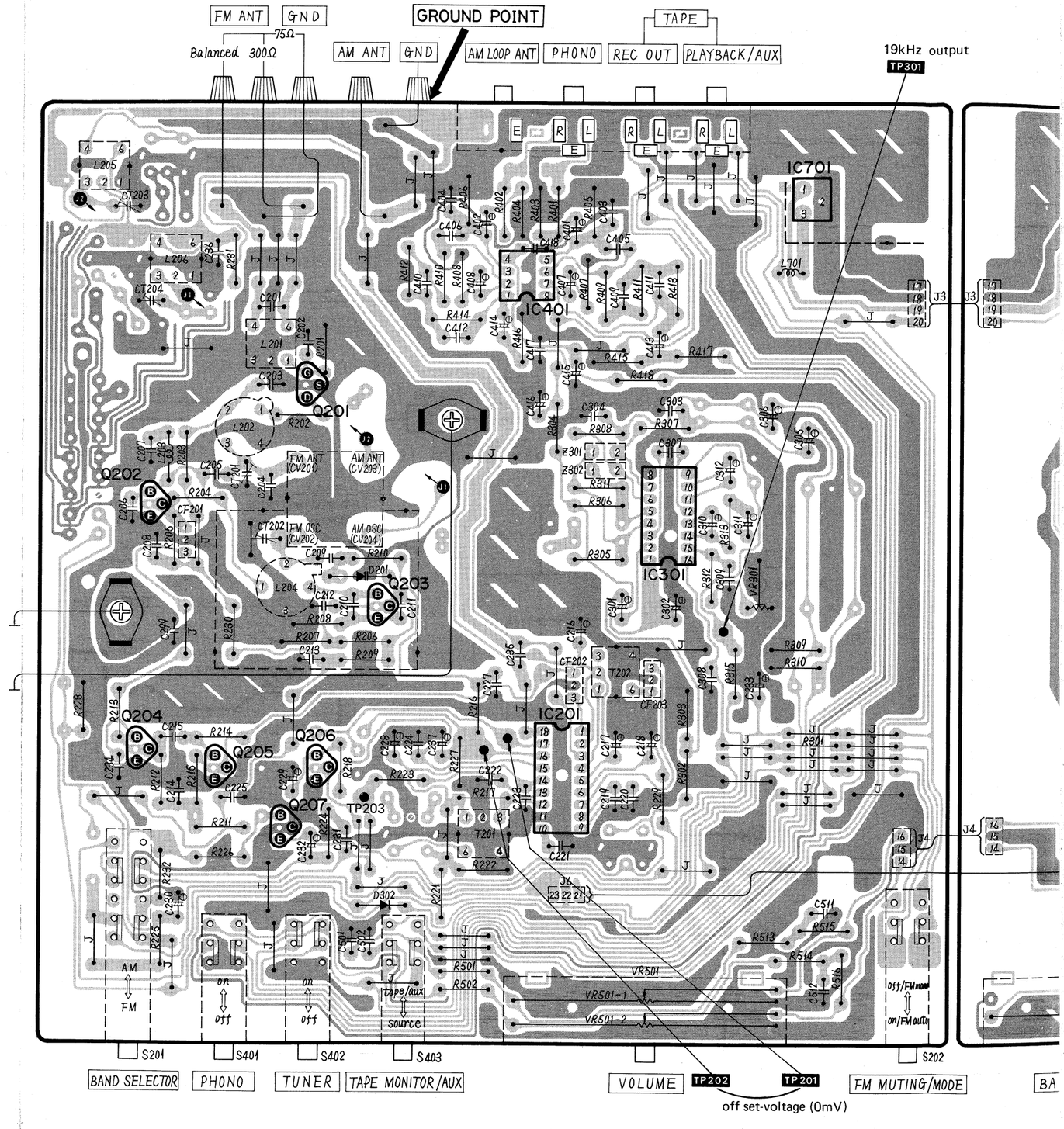
Fig. 14

• Adjustment points



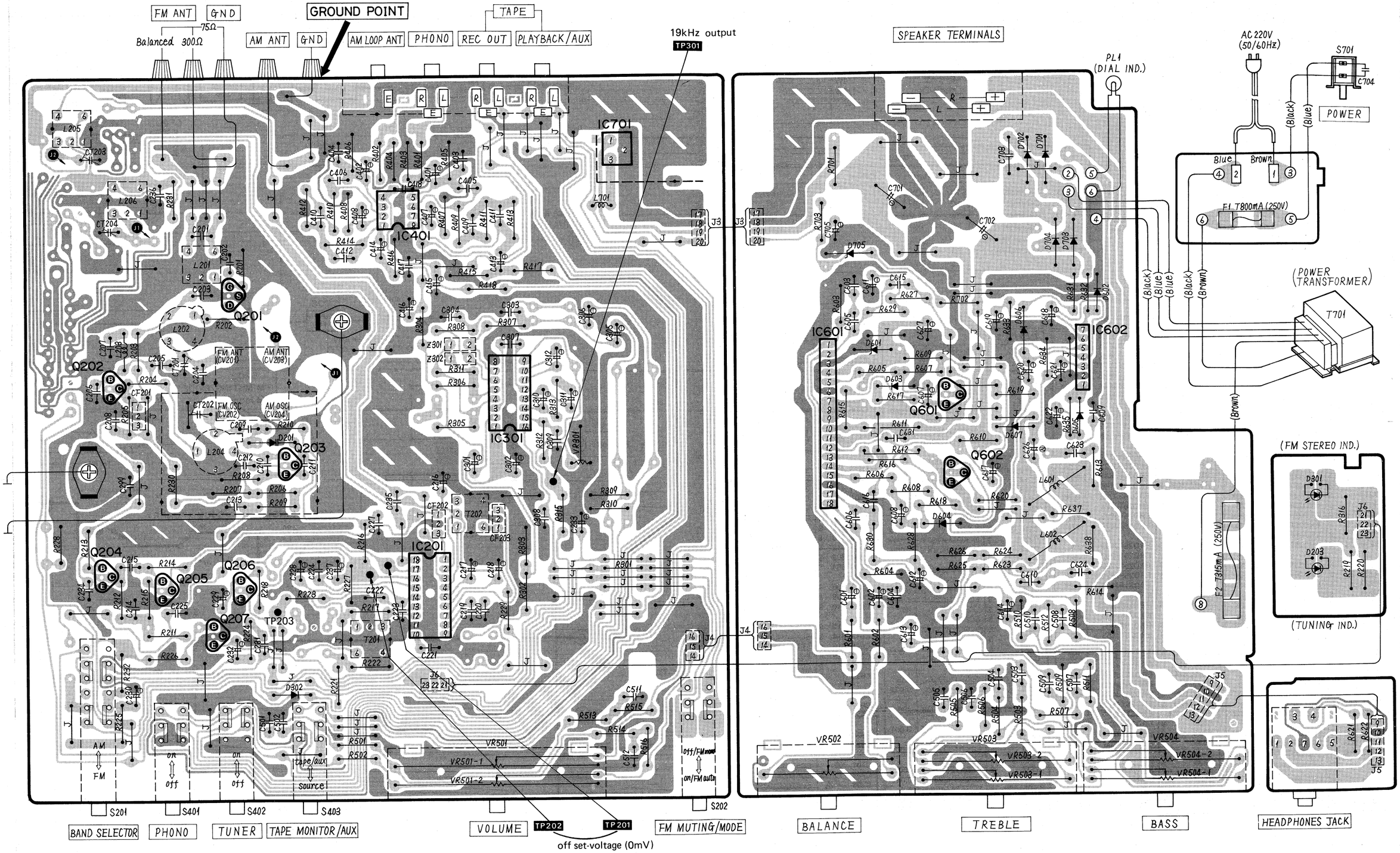
■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

Grou



■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

Ground (Earth) Lines

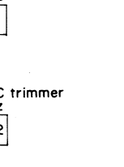


Noise

ise

ut wave form

ig. 13



VR301

Stereo OFF Position.
Stereo ON Position.
Indicator Lighting)
oint of Pilot Circuit.

Fig. 14

coil

trimmer

coil
USTMENT

coil

trimmer

trimmer

7 8 9

■ RESISTORS & CAPACITORS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "**S**" mark is service standard parts and may differ from production parts.
4. The unit of resistance is Ω. (ohm)
   K=1000Ω, M=1000kΩ.
5. The unit of capacitance is μF. (microfarad)
   P=10^{-6}μF.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon ERX : Metal Film	25 : 1/4W S1 : 1/2W 1 : 1W	J : ±5%

Numbering System of Capacitor

Example

ECKD	1H	102	M	D
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Capacitor Type	Voltage		Tolerance
	ECEA Type	Others	
ECEA : Electrolytic	1A : 10V	1H : 50V DC	C : ±0.25pF
ECCD : Ceramic	1C : 16V	2H : 500V DC	J : ±5%
ECKD : Ceramic	1E : 25V	KC : 400V AC	K : ±10%
ECQM : Polyester	1V : 35V		Z : +80%, −20%
ECQP : Polypropylene	1H : 50V		P : +100%, −0%
ECET : Electrolytic	50 : 50V		
	25 : 25V		

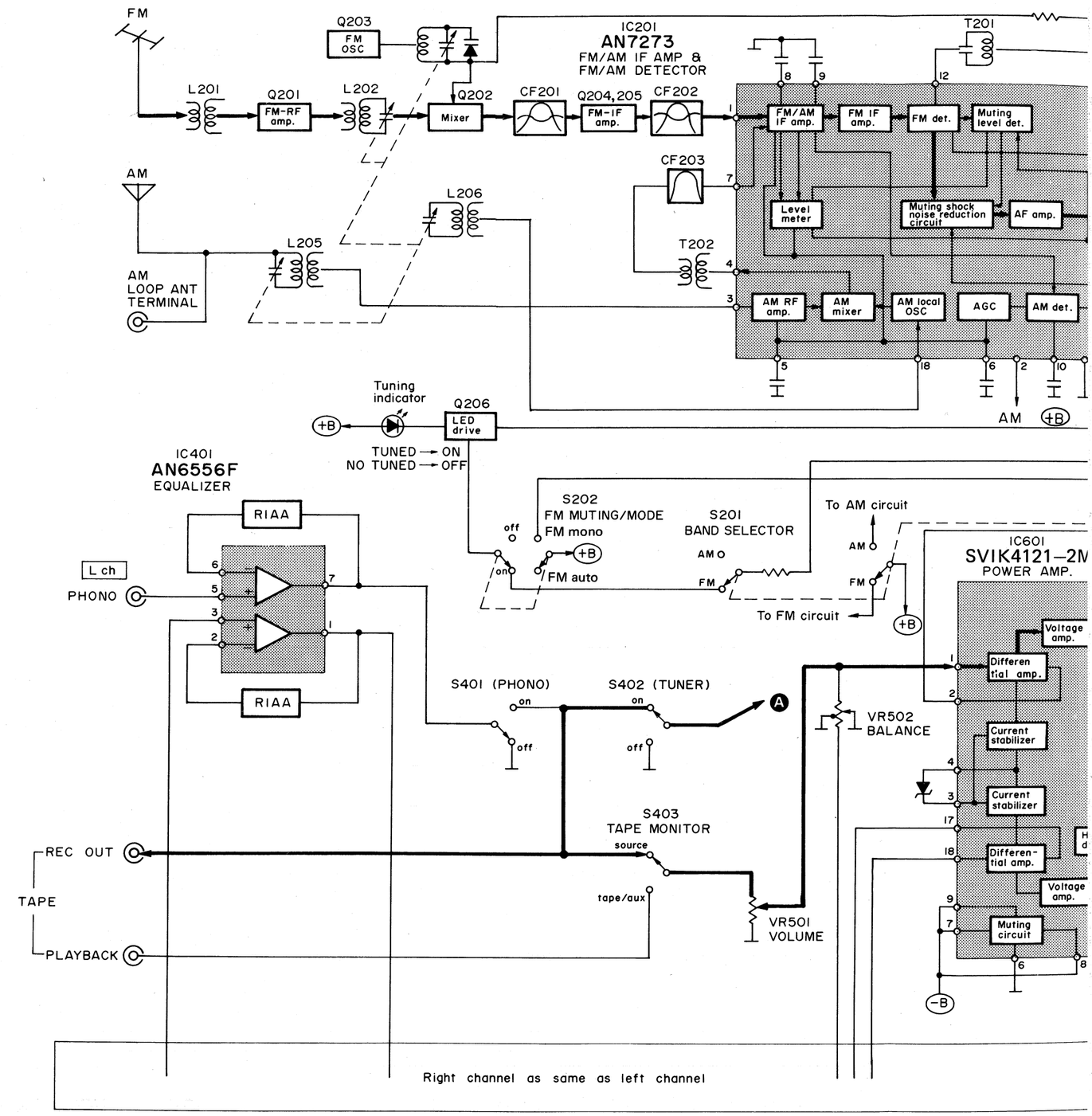
Ref. No.		Part No.	Value
RESISTORS			
R201	S	ERD25FJ102	1K
R202	S	ERD25FJ220	22
R203	S	ERD25FJ221	220
R204	S	ERD25TJ474	470K
R205	S	ERD25FJ471	470
R206	S	ERD25TJ123	12K
R207	S	ERD25FJ822	8.2K
R208	S	ERD25FJ102	1K
R209	S	ERD25FJ562	5.6K
R210	S	ERD25TJ224	220K
R211	S	ERD25FJ472	4.7K
R212	S	ERD25FJ152	1.5K
R213	S	ERD25TJ564	560K
R214	S	ERD25TJ684	680K
R215	S	ERD25FJ471	470
R216	S	ERD25TJ824	820K
R217	S	ERD25FJ152	1.5K
R218	S	ERD25FJ122	1.2K
R219	S	ERD25FJ102	1K
R220	S	ERD25FJ471	470
R221	S	ERD25FJ331	330
R222	S	ERD25FJ102	1K
R223	S	ERD25FJ103	10K
R224	S	ERD25FJ562	5.6K
R225	S	ERD25FJ272	2.7K
R226	S	ERD25FJ472	4.7K
R227	S	ERD25TJ104	100K
R228	S	ERD25TJ154	150K
R229	S	ERD25FJ122	1.2K
R230	S	ERD25FJ151	150
R231	S	ERD25FJ821	820
R232	S	ERD25FJ272	2.7K
R301, 302	S	ERD25FJ103	10K
R303	S	ERD25TJ104	100K
R304	S	ERD25FJ470	47
R305, 306	S	ERD25TJ223	22K
R307, 308	S	ERD25FJ222	2.2K
R309, 310	S	ERD25TJ333	33K
R311	S	ERD25TJ274	270K
R312	S	ERD25TJ153	15K
R313	S	ERD25FJ102	1K
R315, 316	S	ERD25FJ102	1K

Ref. No.		Part No.	Value
R401, 402	S	ERD25FJ391	390
R403, 404	S	ERD25TJ224	220K
R405, 406	S	ERD25TJ563	56K
R407, 408	S	ERD25FJ271	270
R409, 410	S	ERD25FJ680	68
R411, 412	S	ERD25TJ184	180K
R413, 414	S	ERD25TJ123	12K
R415, 416	S	ERD25TJ563	56K
R417, 418	S	ERD25FJ102	1K
R419, 420 [XL] only	S	ERD25FJ100	10
R501, 502	S	ERD25FJ222	2.2K
R503, 504	S	ERD25FJ222	2.2K
R505, 506	S	ERD25FJ561	560
R507, 508	S	ERD25TJ183	18K
R509, 510	S	ERD25FJ222	2.2K
R511, 512	S	ERD25TJ124	120K
R513, 514	S	ERD25TJ823	82K
R515, 516	S	ERD25TJ473	47K
R601, 602	S	ERD25FJ102	1K
R603, 604	S	ERD25TJ393	39K
R605, 606	S	ERD25FJ222	2.2K
R607, 608	S	ERD25FJ222	2.2K
R609 ⚠		ERDS1FJ122	1.2K
R610 ⚠		ERDS1FJ101	100
R611, 612 ⚠	S	ERX1ANJR22	0.22
R613, 614 ⚠		ERDS1FJ100	10
R615, 616	S	ERD25FJ331	330
R617, 618	S	ERD25TJ153	15K
R619, 620	S	ERD25TJ223	22K
R621, 622		ERDS1FJ331	330
R623, 624	S	ERD25TJ153	15K
R625, 626	S	ERD25FJ152	1.5K
R627, 628	S	ERD25TJ473	47K
R629, 630	S	ERD25TJ123	12K
R631 ⚠		ERDS1FJ220	22
R632	S	ERD25TJ823	82K
R633	S	ERD25TJ393	39K
R634	S	ERD25FJ103	10K
R635	S	ERD25FJ272	2.7K
R637, 638 ⚠		ERDS1FJ100	10
R701 ⚠		ERDS1FJ220	22
R702 ⚠		ERDS1FJ102	1K
R703	S	ERD25FJ221	220

Ref. No.		Part No.	Value
CAPACITORS			
C201	S	ECCD1H220KC	22P
C202	S	ECCD1H180KC	18P
C203	S	ECKD1H103ZF	0.01
C204	S	ECCD1H180KC	18P
C205	S	ECCD1H030CC	3P
C206	S	ECCD1H070CC	7P
C207	S	ECCD1H181K	180P
C208	S	ECKD1H103ZF	0.01
C209	S	ECCD1H080CC	8P
C210	S	ECCD1H390KC	39P
C211	S	ECCD1H100KC	10P
C212, 213	S	ECKD1H103ZF	0.01
C214	S	ECKD1H103ZF	0.01
C215	S	ECCD1H151K	150P
C216	S	ECEA1HS100	10
C217	S	ECEA1AS101	100
C218	S	ECEA25Z4R7	4.7
C219, 220	S	ECKD1H223ZF	0.022
C221	S	ECKD1H473ZF	0.047
C222	S	ECCD1H101K	100P
C223	S	ECKD1H223ZF	0.022
C224	S	ECKD1H103ZF	0.01
C225	S	ECKD1H223ZF	0.022
C227	S	ECKD1H223ZF	0.022
C228	S	ECEA1AS470	47
C229, 230	S	ECEA1HS100	10
C231	S	ECQM1H183JZ	0.018
C232	S	ECEA50Z2R2	2.2
C233	S	ECEA1HS100	10
C234	S	ECCD1H270KC	27P
C235	S	ECCD1H330KC	33P
C236	S	ECKD1H223ZF	0.022
C237	S	ECEA50Z1	1
C240, 241 ⚠ [XL] only		ECKDHS101MB	100
C242, 243 ⚠ [XL] only		ECKDHS102MD	0.001
C299	S	ECKD1H223ZF	0.022
C301	S	ECEA50Z1	1
C302	S	ECEA1ES101	100
C303, 304	S	ECQM1H223JZ	0.022
C305, 306	S	ECEA25Z4R7	4.7
C307	S	ECQM1H473JZ	0.047
C308	S	ECKD1H103ZF	0.01

Ref. No.		Part No.	Value
C309		ECQP1471JZ	470P
C310	S	ECEA50Z1	1
C311	S	ECEA50Z3R3	3.3
C312	S	ECEA50ZR47	0.47
C401, 402	S	ECEA50Z3R3	3.3
C403, 404	S	ECCD1H101K	100P
C405, 406	S	ECKD1H471KB	470P
C407, 408	S	ECEA1CS330	33
C409, 410	S	ECQM1H223JZ	0.022
C411, 412	S	ECQM1H682JZ	0.0068
C413, 414	S	ECEA50Z1	1
C415, 416	S	ECEA1CS330	33
C417	S	ECKD1H103ZF	0.01
C418	S	ECKD1H473ZF	0.047
C501, 502	S	ECKD1H471KB	470P
C503, 504	S	ECQM1H222JZ	0.0022
C505, 506	S	ECQM1H223JZ	0.022
C507, 508	S	ECQM1H183JZ	0.018
C509, 510	S	ECQM1H104JZ	0.1
C511, 512	S	ECQM1H333JZ	0.033
C601, 602	S	ECEA50Z3R3	3.3
C603, 604	S	ECCD1H101K	100P
C605, 606	S	ECCD1H181K	180P
C607, 608	S	ECEA1HS100	10
C609, 610	S	ECQM1H104JZ	0.1
C611, 612	S	ECEA1AS470	47
C613, 614	S	ECEA1HS100	10
C615, 616	S	ECCD1H030CC	3P
C617, 618	S	ECEA1VS101	100
C619	S	ECEA1HS100	10
C620	S	ECEA50Z3R3	3.3
C621	S	ECEA1HS100	10
C622	S	ECEA1ES470	47
C623, 624	S	ECQM1H104JZ	0.1
C626 ⚠		ECEA1EN220S	22
C627	S	ECEA1JS330	33
C701, 702		ECETS1VV472U	0.0047
C703	S	ECKD2H103PE	0.01
C704 ⚠		ECKDKC103PF	0.01
C705	S	ECEA50Z1	1

■ BLOCK DIAGRAM



■ RESISTORS & CAPACITORS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "**S**" mark is service standard parts and may differ from production parts.
4. The unit of resistance is Ω. (ohm)
   K=1000Ω, M=1000kΩ.
5. The unit of capacitance is μF. (microfarad)
   P=10^{-6}μF.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon ERX : Metal Film	25 : 1/4W S1 : 1/2W 1 : 1W	J : ±5%

Numbering System of Capacitor

Example

ECKD	1H	102	M	D
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Capacitor Type	Voltage		Tolerance
	ECEA Type	Others	
ECEA : Electrolytic	1A : 10V	1H : 50V DC	C : ±0.25pF
ECCD : Ceramic	1C : 16V	2H : 500V DC	J : ±5%
ECKD : Ceramic	1E : 25V	KC : 400V AC	K : ±10%
ECQM : Polyester	1V : 35V		Z : +80%, −20%
ECQP : Polypropylene	1H : 50V		P : +100%, −0%
ECET : Electrolytic	50 : 50V		
	25 : 25V		

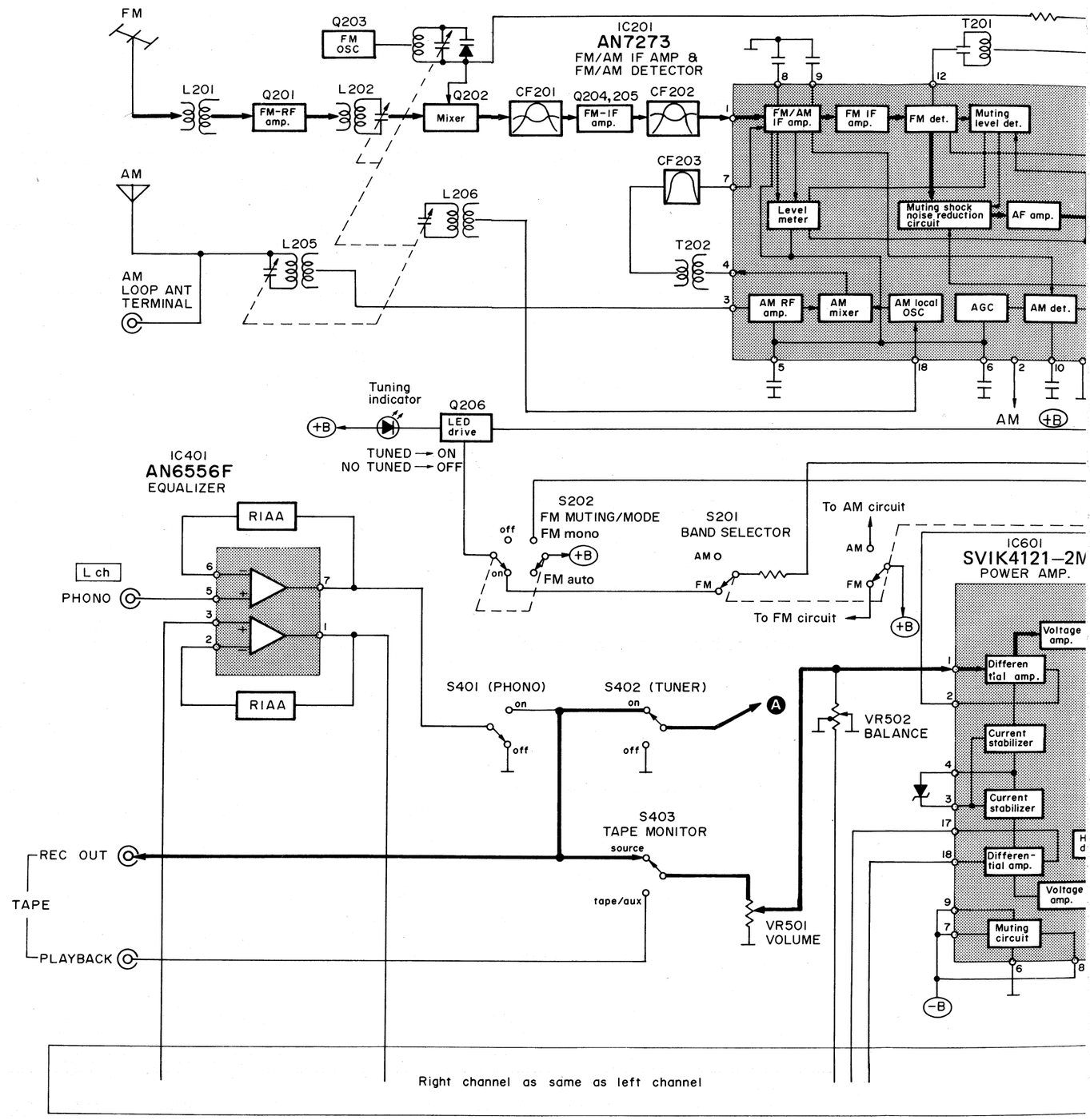
Ref. No.		Part No.	Value
RESISTORS			
R201	S	ERD25FJ102	1K
R202	S	ERD25FJ220	22
R203	S	ERD25FJ221	220
R204	S	ERD25TJ474	470K
R205	S	ERD25FJ471	470
R206	S	ERD25TJ123	12K
R207	S	ERD25FJ822	8.2K
R208	S	ERD25FJ102	1K
R209	S	ERD25FJ562	5.6K
R210	S	ERD25TJ224	220K
R211	S	ERD25FJ472	4.7K
R212	S	ERD25FJ152	1.5K
R213	S	ERD25TJ564	560K
R214	S	ERD25TJ684	680K
R215	S	ERD25FJ471	470
R216	S	ERD25TJ824	820K
R217	S	ERD25FJ152	1.5K
R218	S	ERD25FJ122	1.2K
R219	S	ERD25FJ102	1K
R220	S	ERD25FJ471	470
R221	S	ERD25FJ331	330
R222	S	ERD25FJ102	1K
R223	S	ERD25FJ103	10K
R224	S	ERD25FJ562	5.6K
R225	S	ERD25FJ272	2.7K
R226	S	ERD25FJ472	4.7K
R227	S	ERD25TJ104	100K
R228	S	ERD25TJ154	150K
R229	S	ERD25FJ122	1.2K
R230	S	ERD25FJ151	150
R231	S	ERD25FJ821	820
R232	S	ERD25FJ272	2.7K
R301, 302	S	ERD25FJ103	10K
R303	S	ERD25TJ104	100K
R304	S	ERD25FJ470	47
R305, 306	S	ERD25TJ223	22K
R307, 308	S	ERD25FJ222	2.2K
R309, 310	S	ERD25TJ333	33K
R311	S	ERD25TJ274	270K
R312	S	ERD25TJ153	15K
R313	S	ERD25FJ102	1K
R315, 316	S	ERD25FJ102	1K

Ref. No.		Part No.	Value
R401, 402	S	ERD25FJ391	390
R403, 404	S	ERD25TJ224	220K
R405, 406	S	ERD25TJ563	56K
R407, 408	S	ERD25FJ271	270
R409, 410	S	ERD25FJ680	68
R411, 412	S	ERD25TJ184	180K
R413, 414	S	ERD25TJ123	12K
R415, 416	S	ERD25TJ563	56K
R417, 418	S	ERD25FJ102	1K
R419, 420 [XL] only	S	ERD25FJ100	10
R501, 502	S	ERD25FJ222	2.2K
R503, 504	S	ERD25FJ222	2.2K
R505, 506	S	ERD25FJ561	560
R507, 508	S	ERD25TJ183	18K
R509, 510	S	ERD25FJ222	2.2K
R511, 512	S	ERD25TJ124	120K
R513, 514	S	ERD25TJ823	82K
R515, 516	S	ERD25TJ473	47K
R601, 602	S	ERD25FJ102	1K
R603, 604	S	ERD25TJ393	39K
R605, 606	S	ERD25FJ222	2.2K
R607, 608	S	ERD25FJ222	2.2K
R609 ⚠	S	ERDS1FJ122	1.2K
R610 ⚠	S	ERDS1FJ101	100
R611, 612 ⚠	S	ERX1ANJR22	0.22
R613, 614 ⚠	S	ERDS1FJ100	10
R615, 616	S	ERD25FJ331	330
R617, 618	S	ERD25TJ153	15K
R619, 620	S	ERD25TJ223	22K
R621, 622		ERDS1FJ331	330
R623, 624	S	ERD25TJ153	15K
R625, 626	S	ERD25FJ152	1.5K
R627, 628	S	ERD25TJ473	47K
R629, 630	S	ERD25TJ123	12K
R631 ⚠	S	ERDS1FJ220	22
R632	S	ERD25TJ823	82K
R633	S	ERD25TJ393	39K
R634	S	ERD25FJ103	10K
R635	S	ERD25FJ272	2.7K
R637, 638 ⚠	S	ERDS1FJ100	10
R701 ⚠	S	ERDS1FJ220	22
R702 ⚠	S	ERDS1FJ102	1K
R703	S	ERD25FJ221	220

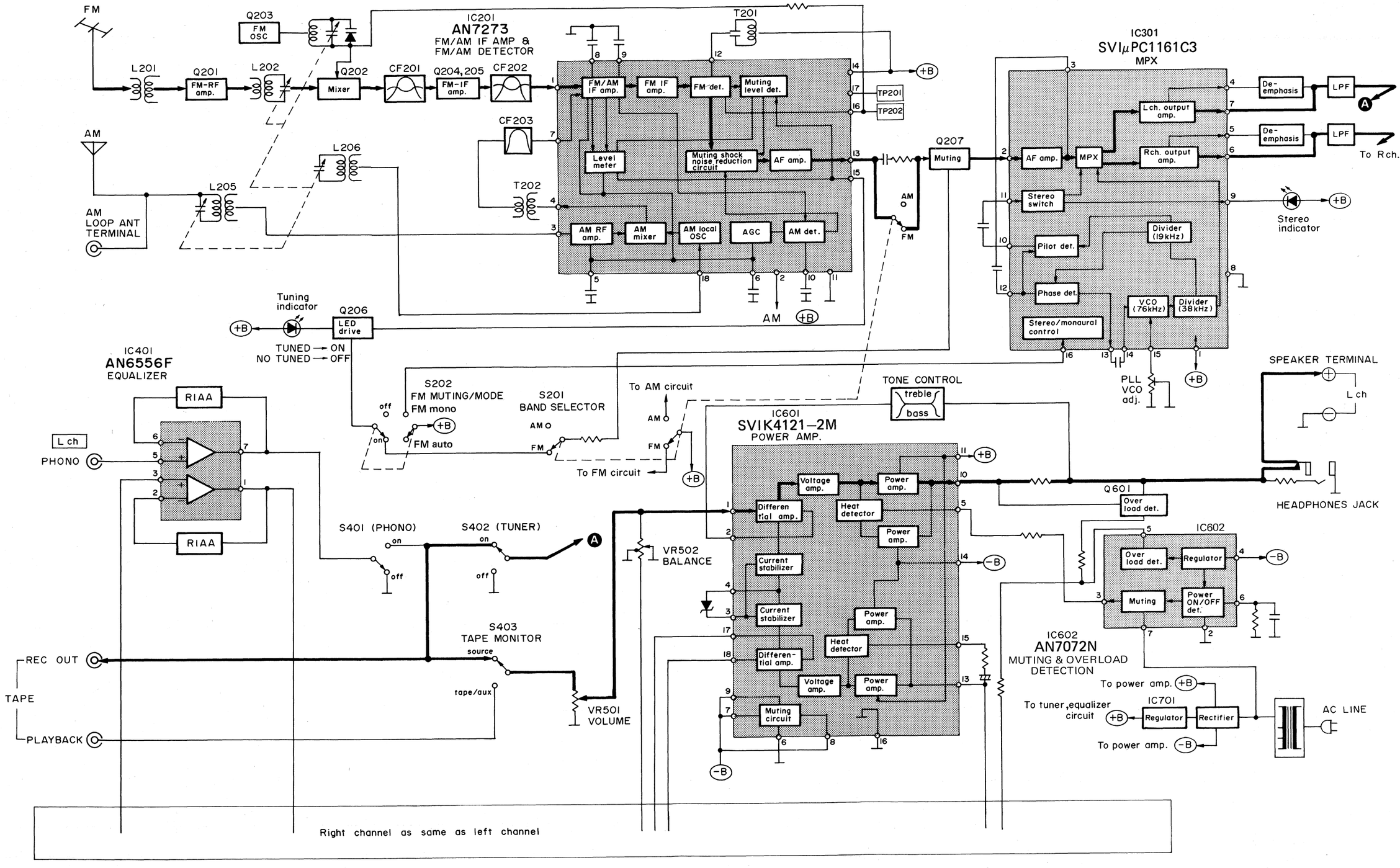
Ref. No.		Part No.	Value
CAPACITORS			
C201	S	ECCD1H220KC	22P
C202	S	ECCD1H180KC	18P
C203	S	ECKD1H103ZF	0.01
C204	S	ECCD1H180KC	18P
C205	S	ECCD1H030CC	3P
C206	S	ECCD1H070CC	7P
C207	S	ECCD1H181K	180P
C208	S	ECKD1H103ZF	0.01
C209	S	ECCD1H080CC	8P
C210	S	ECCD1H390KC	39P
C211	S	ECCD1H100KC	10P
C212, 213	S	ECKD1H103ZF	0.01
C214	S	ECKD1H103ZF	0.01
C215	S	ECCD1H151K	150P
C216	S	ECEA1HS100	10
C217	S	ECEA1AS101	100
C218	S	ECEA25Z4R7	4.7
C219, 220	S	ECKD1H223ZF	0.022
C221	S	ECKD1H473ZF	0.047
C222	S	ECCD1H101K	100P
C223	S	ECKD1H223ZF	0.022
C224	S	ECKD1H103ZF	0.01
C225	S	ECKD1H223ZF	0.022
C227	S	ECKD1H223ZF	0.022
C228	S	ECEA1AS470	47
C229, 230	S	ECEA1HS100	10
C231	S	ECQM1H183JZ	0.018
C232	S	ECEA50Z2R2	2.2
C233	S	ECEA1HS100	10
C234	S	ECCD1H270KC	27P
C235	S	ECCD1H330KC	33P
C236	S	ECKD1H223ZF	0.022
C237	S	ECEA50Z1	1
C240, 241 ⚠ [XL] only	S	ECKDHS101MB	100
C242, 243 ⚠ [XL] only	S	ECKDHS102MD	0.001
C299	S	ECKD1H223ZF	0.022
C301	S	ECEA50Z1	1
C302	S	ECEA1ES101	100
C303, 304	S	ECQM1H223JZ	0.022
C305, 306	S	ECEA25Z4R7	4.7
C307	S	ECQM1H473JZ	0.047
C308	S	ECKD1H103ZF	0.01

Ref. No.		Part No.	Value
C309		ECQP1471JZ	470P
C310	S	ECEA50Z1	1
C311	S	ECEA50Z3R3	3.3
C312	S	ECEA50ZR47	0.47
C401, 402	S	ECEA50Z3R3	3.3
C403, 404	S	ECCD1H101K	100P
C405, 406	S	ECKD1H471KB	470P
C407, 408	S	ECEA1CS330	33
C409, 410	S	ECQM1H223JZ	0.022
C411, 412	S	ECQM1H682JZ	0.0068
C413, 414	S	ECEA50Z1	1
C415, 416	S	ECEA1CS330	33
C417	S	ECKD1H103ZF	0.01
C418	S	ECKD1H473ZF	0.047
C501, 502	S	ECKD1H471KB	470P
C503, 504	S	ECQM1H222JZ	0.0022
C505, 506	S	ECQM1H223JZ	0.022
C507, 508	S	ECQM1H183JZ	0.018
C509, 510	S	ECQM1H104JZ	0.1
C511, 512	S	ECQM1H333JZ	0.033
C601, 602	S	ECEA50Z3R3	3.3
C603, 604	S	ECCD1H101K	100P
C605, 606	S	ECCD1H181K	180P
C607, 608	S	ECEA1HS100	10
C609, 610	S	ECQM1H104JZ	0.1
C611, 612	S	ECEA1AS470	47
C613, 614	S	ECEA1HS100	10
C615, 616	S	ECCD1H030CC	3P
C617, 618	S	ECEA1VS101	100
C619	S	ECEA1HS100	10
C620	S	ECEA50Z3R3	3.3
C621	S	ECEA1HS100	10
C622	S	ECEA1ES470	47
C623, 624	S	ECQM1H104JZ	0.1
C626 ⚠		ECEA1EN220S	22
C627	S	ECEA1JS330	33
C701, 702		ECETS1VV472U	0.0047
C703	S	ECKD2H103PE	0.01
C704 ⚠		ECKDKC103PF	0.01
C705	S	ECEA50Z1	1

■ BLOCK DIAGRAM



■ BLOCK DIAGRAM



Part No.	Value
CQP1471JZ	470P
CEA50Z1	1
CEA50Z3R3	3.3
CEA50ZR47	0.47
CEA50Z3R3	3.3
CCD1H101K	100P
CKD1H471KB	470P
CEA1CS330	33
CQM1H223JZ	0.022
CQM1H682JZ	0.0068
CEA50Z1	1
CEA1CS330	33
CKD1H103ZF	0.01
CKD1H473ZF	0.047
CKD1H471KB	470P
CQM1H222JZ	0.0022
CQM1H223JZ	0.022
CQM1H183JZ	0.018
CQM1H104JZ	0.1
CQM1H333JZ	0.033
CEA50Z3R3	3.3
CCD1H101K	100P
CCD1H181K	180P
CEA1HS100	10
CQM1H104JZ	0.1
CEA1AS470	47
CEA1HS100	10
CCD1H030CC	3P
CEA1VS101	100
CEA1HS100	10
CEA50Z3R3	3.3
CEA1HS100	10
CEA1ES470	47
CQM1H104JZ	0.1
CEA1EN220S	22
CEA1JS330	33
CETS1VV472U	0.0047
CKD2H103PE	0.01
CKDKC103PF	0.01
CEA50Z1	1

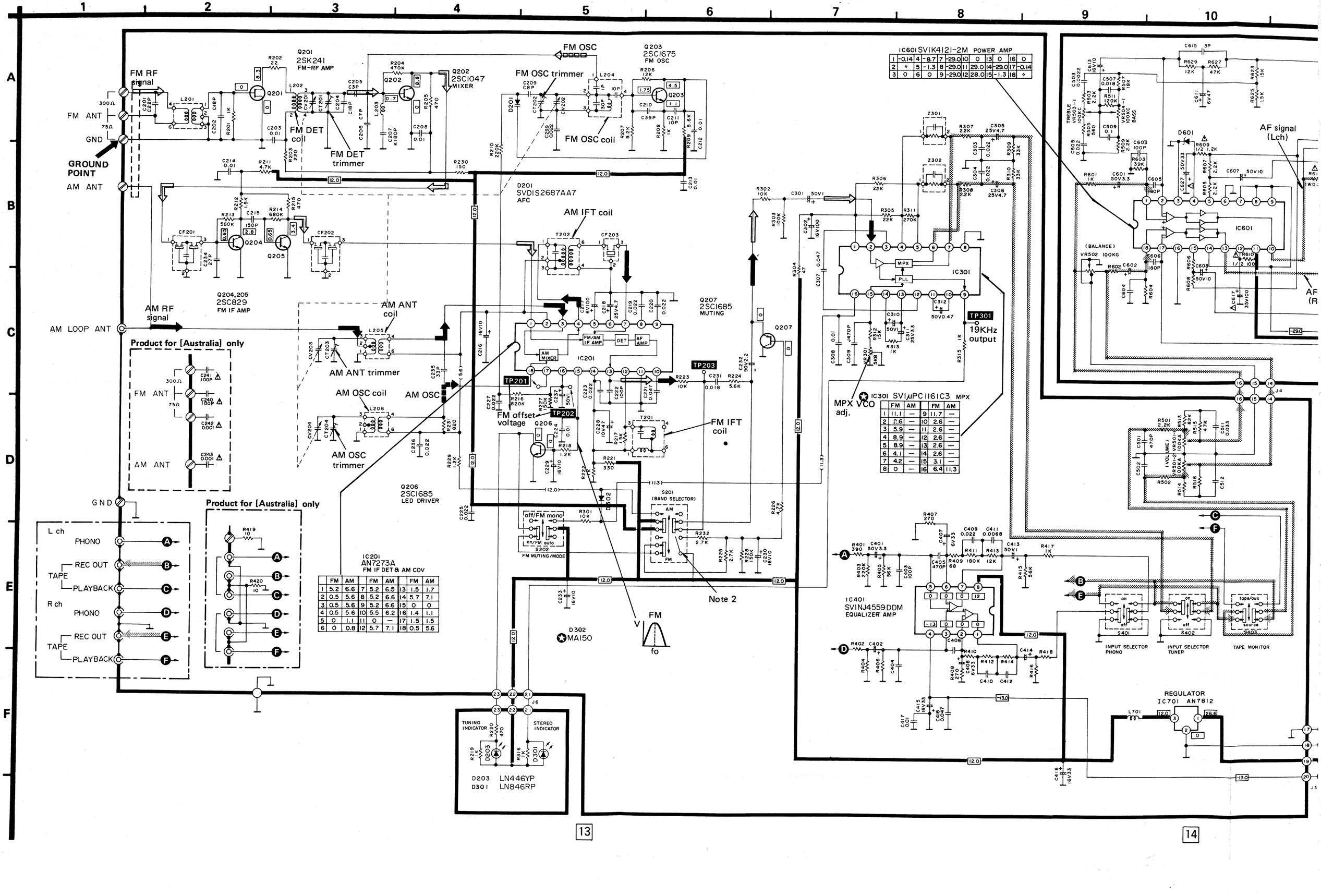
Value
101

erance
±5%

Tolerance
: ±0.25pF
: ±5%
: ±10%
: +80%, –20%
: +100%, –0%

■ SCHEMATIC DIAGRAM

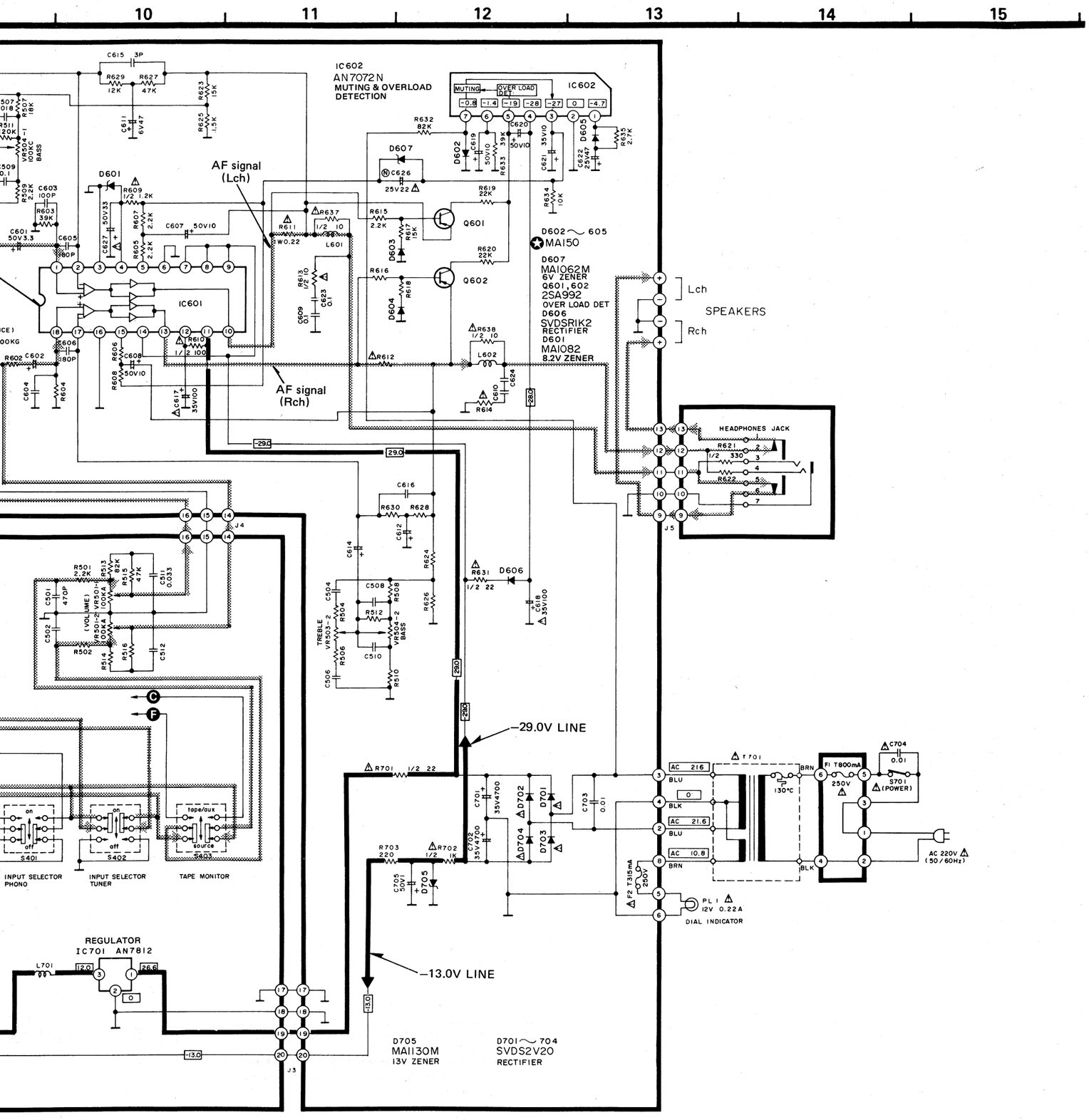
(This schematic diagram may be modified at any time with the development of new technology.)



	FM	AM		FM	AM		FM	AM
1	5.2	6.6	7	5.2	6.5	13	1.5	1.7
2	0.5	5.6	8	5.2	6.6	14	5.7	7.1
3	0.5	5.6	9	5.2	6.6	15	0	0
4	0.5	5.6	10	5.5	6.2	16	1.4	1.1
5	0	1.1	11	0	—	17	1.5	1.5
6	0	0.8	12	5.7	7.1	18	0.5	5.6

1	-0.14	4	-8.7	7	-29.0	10	0	13	0	16	0
2	↯	5	-1.3	8	-29.0	11	29.0	14	-29.0	17	-0.14
3	0	6	0	9	-29.0	12	28.0	15	-1.3	18	↯

	FM	AM		FM	AM
1	11.1	—	9	11.7	—
2	2.6	—	10	2.6	—
3	5.9	—	11	2.6	—
4	8.9	—	12	2.6	—
5	8.9	—	13	2.6	—
6	4.1	—	14	2.6	—
7	4.2	—	15	3.1	—
8	0	—	16	6.4	11.3



*** The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ○ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement parts, please use the part No. in the replacement parts list.**

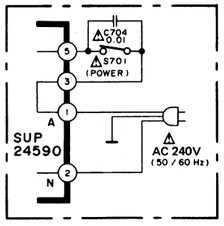
Notes 1:

1. **S201** : Band selector switch in "FM" position.
   FM ↔ AM
2. **S202** : FM muting/mode switch in "on/FM auto" position.
   on/FM auto ↔ off/FM mono
3. **S401, S402** : Input selector switch in "tuner" position.
   phono (S401) ↔ tuner (S402)
4. **S403** : Tape monitor switch in "source" position.
   source ↔ tape/aux
5. **S701** : Power source switch in "on" position.
6. **S702[XA]only** : Voltage selector switch in "240V" position.
   120V ↔ 110V ↔ 220V ↔ 240V
7. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
   * Figures in [ ] standard for DC voltage in FM signal reception made.
   * Figures in ( ) standard for DC voltage in AM signal reception mode.
8. ⇨ FM signal lines. ➡ AM signal lines.
   ▒ AF signal lines. ▬ Positive voltage lines.
9. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

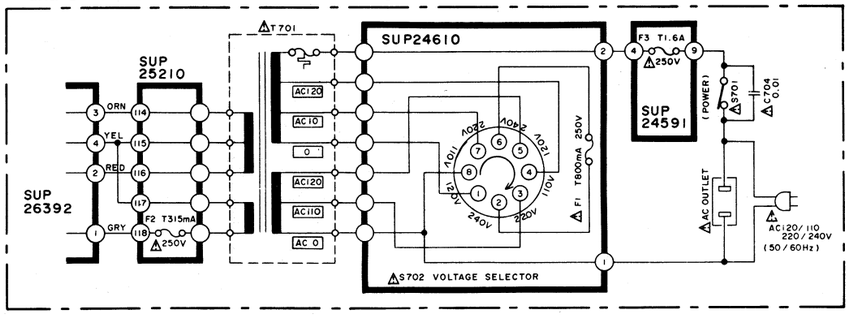
Note 2:

Muting switch part. It is positioned as shown only for a moment it is switched.
Usually, it is not connected to the circuit.

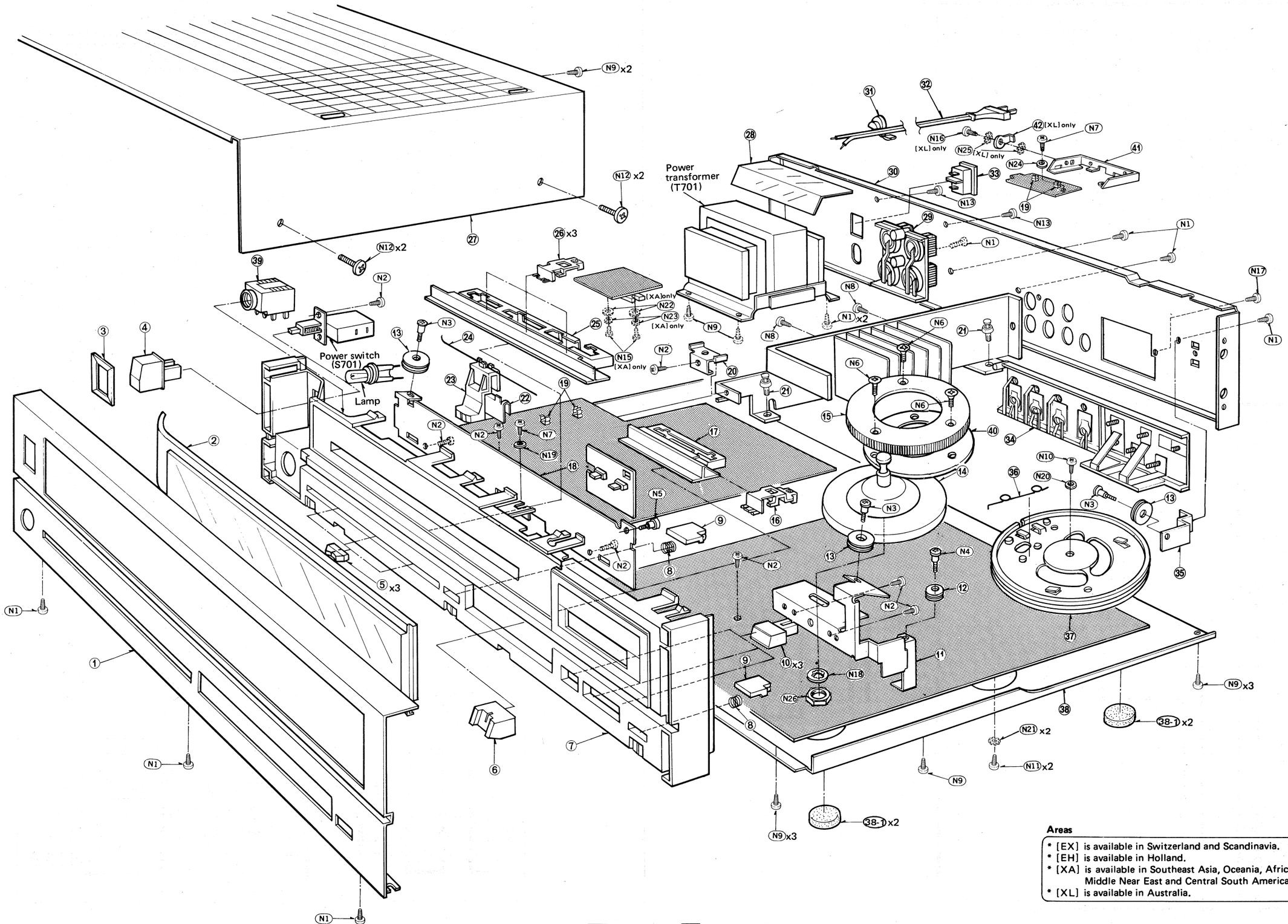
● Power source circuit for Australia [XL] only



● Power source circuit for Southeast Asia, Oceania, Africa, Middle Near East and Central South America . . . . . [XA].



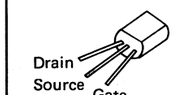
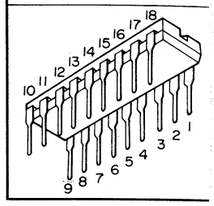
■ EXPLODED VIEWS



Areas

* [EX] is available in Switzerland and Scandinavia.
* [EH] is available in Holland.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [XL] is available in Australia.

● Terminal guide of

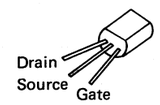
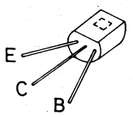
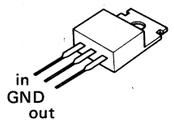
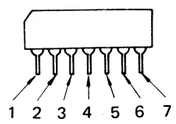
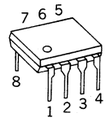
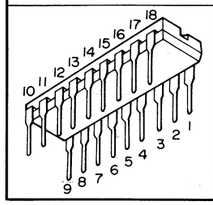
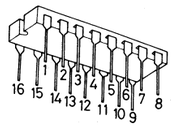
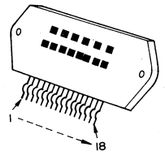
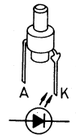
2SK241

AN7273


■ REPLACEMEI

Notes: 1. Part numbers ar
2. Important safet
3. ⚠ —marked
4. Part other than
5. Bracketed indic
6. The "S" mark i
7. The parenthesiz

Ref. No.		Part No.
INTEGRATED CIRCUITS		
IC201		AN7273A
IC301		SVIUPC1161C3
IC401		SVINJ4559DDM
IC601		SVIK4121–2M
IC602		AN7072N
IC701		SVIUPC7812H
TRANSISTORS		
Q201	S	2SK241–GR
Q202	S	2SC1047–D
Q203	S	2SC1675–L
Q204, 205	S	2SC829–C
Q206, 207	S	2SC1685–Q
Q601, 602		2SA992
DIODES		
D201	S	IS2687AA
D203		LN446YP
D301		LN846RP
D302, 602~605	S	MA162A
D601	S	SVDRD8.2EB
D606,	⚠ S	SVDSR1K2
D607		MA1062M
D701 ~ 704 D705	⚠	SVDS2V20 MA1130M
COILS		
L201		SLA4N39
L202		SLD4P71–P
L203		SLQZ12G1–D
L204		SLO4P121–P
L205		SLA2C9–P
L206		SLO2C33–P
L601, 602		SLQY15G–30
L701		SLQX101–3M

● Terminal guide of transistors, IC's and diodes

2SK241	2SC1047, 2SC1685 2SC1675, 2SA992 2SC829, 2SC1815	AN7812	AN7072N	SVINJ4559DDM
				
AN7273	SVIμPC1161C3	SVIK4121–2M	LN846RP LN446YP	
				

■ REPLACEMENT PARTS LIST

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
3. [K] –marked parts are used for black only, while ○ –marked parts are for silver type only.
4. Part other than [K] – marked ○–marked are used for both black and silver type.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
6. The "**S**" mark is service standard parts and may differ from production parts.
7. The parenthesized numbers in the column of description stand for the quantity per set. Black type model No. : SA-110 (K)

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC201	AN7273A	FM IF Detector & AM Converter
IC301	SVIUPC1161C3	MPX
IC401	SVINJ4559DDM	Equalizer Amp.
IC601	SVIK4121–2M	Power Amplifier
IC602	AN7072N	Muting
IC701	SVIUPC7812H	Regulator
TRANSISTORS		
Q201	2SK241–GR	FM-RF Amplifier
Q202 S	2SC1047–D	Mixer
Q203 S	2SC1675–L	FM Oscillator
Q204, 205 S	2SC829–C	FM-IF Amplifier
Q206, 207 S	2SC1685–Q	L.E.D. Driver, Muting
Q601, 602	2SA992	Over Load Detector
DIODES		
D201 S	IS2687AA	FM AFC
D203	LN446YP	L.E.D. Tuning
D301	LN846RP	L.E.D. Stereo
D302, 602~605 S	MA162A	Switching
D601 S	SVDRD8.2EB	Zener, 8.2V
D606, ⚠ S	SVDSR1K2	Rectifier
D607	MA1062M	Zener, 6.2V
D701 ~ 704 ⚠	SVDS2V20	Rectifier
D705	MA1130M	Zener, 13V
COILS		
L201	SLA4N39	FM Antenna
L202	SLD4P71–P	FM Detector
L203	SLQZ12G1–D	Choke
L204	SLO4P121–P	FM Oscillator
L205	SLA2C9–P	AM Antenna
L206	SLO2C33–P	AM Oscillator
L601, 602	SLQY15G–30	Choke
L701	SLQX101–3M	Choke

Ref. No.	Part No.	Description
TRANSFORMERS		
T201	SLI4C539–P	FM IFT
T202	SLI2C139–M	AM IFT
T701 [EX,EH] ⚠	SLT5M275	Power Source
T701 [XL] only ⚠	SLT5M277	Power Source
T701 [XA] only ⚠	SLT5M279	Power Source
CERAMIC FILTERS		
CF201, 202	SVFE107MS2–A	FM, 10.7MHz (Red)
	SVFE107MS2–B	FM, 10.675MHz (Blue)
	SVFE107MS2–C	FM, 10.725MHz (Orange)
	SVFE107MS2–D	FM, 10.650MHz (Black)
	SVFE107MS2–E	FM, 10.750MHz (White)
	(Use pair ranks as same as CF201 and CF202)	
CF203	SVFSFU450B3	AM, 450kHz
VARIABLE RESISTORS		
VR301	EVN75AA00B53	VCO Adjustment, 5kΩ(B)
VR501	EWE00605A15S	Volume Control, 100kΩ(A)
VR502	EVD00305G15S	Balance Control, 100kΩ(G)
VR503, 504	EWD00205C15S	Treble, Bass, 100kΩ(C)
VARIABLE CAPACITORS		
CT201, 204	ECRHA010A11	Trimmer, FM Detector, AM Oscillator

Ref. No.	Part No.	Description
CT202	ECVIZW10X32E	Trimmer, FM Oscillator
CT203	ECRHA007A11	Trimmer, AM Antenna
CV201	SVCCB41T914	Tuning Gang
LAMP		
PL1 ⚠	XAMR78S250	Dial Indicator, 12V, 0.22A
FUSE		
F1 ⚠	XBA2C08TRO	Power Source, 250V, T800mA
F2 ⚠	XBA2C03TRO	Power Source, 250V, T315mA
F3 [XA] only ⚠	XBA2C16TRO	Power Source, 250V, T1.6A
COMPONENT COMBINATIONS		
Z301, 302	EXRP181K473C	180pF, 47kΩ
SWITCHES		
S201	SSH1093	Band Selector, FM/AM
S202	SSH1031	FM Muting/Mode
S401, 402	SSH2051	Input Selector
S403	SSH1091	Tape Monitor
S701 ⚠	SSH1071	Power Source
S702 [XA] only ⚠	ESE37219	Voltage Selector

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1 ○	SGWA110M	Front Panel, Ass'y (Silver) (1)
1 [K]	SGWA110KE	Front Panal, Ass'y (Black) (1)
2 ○	SGU333	Transparent Plate (Silver Type) (1)
2 [K]	SGU333–1	Transparent Plate (Black Type) (1)
3	SHS2485	Spacer, Power Switch (1)
4	SBC337–1	Button, Power Switch (1)
5 ○	SBD69–2M	Knob, Bass, Treble and Balance (Silver) (3)
5 [K]	SBD69–1M	Knob, Bass, Treble and Balance (Black) (3)
6 ○	SBD77	Knob, Volume (Silver) (1)
6 [K]	SBD77–1	Knob, Volume (Black) (1)
7 ○	SGXA110E	Ornament, Front Panel (Silver Type) (1)
7 [K]	SGXA110KE	Ornament, Front Panel (Black Type) (1)
8	SUS257	Spring, Button (2)
9	SBC423	Button, FM Muting/ Mode and Type Moniter (2)
10 ○	SBC529	Button, Input (Silver) (3)
10 [K]	SBC529–1	Button, Input (Black) (3)
11	SUW1985	Bracket, Flywheel (1)
12	SDR3	Pulley (1)
13 S	RDR8–1	Pulley (3)
14	SDT8101–1	Flywheel (1)
15 ○	SBN1147–2	Knob, Dial Tuning (Silver) (1)
15 [K]	SBN1147–3	Knob, Dial Tuning (Black) (1)
16 ○	SBZ657	Holder, Volume Knob (Silver) (1)
16 [K]	SBZ657–1	Holder, Volume Knob (Black) (1)
17 ○	SGX7463	Ornament, Volume (Silver) (1)
17 [K]	SGX7463–1	Ornament, Volume (Black) (1)
18	SUG81	Bracket, Dial Pointer (1)
19	SJT347	Holder, Fuse (4)
19 [XA] only	SJT347	Holder, Fuse (6)
20	SUW1989	Bracker (1)
21	SHR411	Lock Pin (2)
22	SHP59	Spacer, Dial Pointer (1)
23	SDP1167–1	Dial Pointer (1)
24	SDZ051–2	Cord, Dial (180cm)
25 ○	SGX7461	Ornament, Knob (Silver) (1)
25 [K]	SGX7461–1	Ornament, Knob (Black) (1)

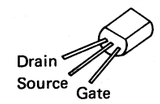
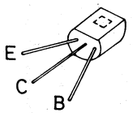
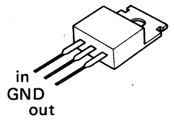
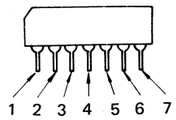
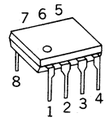
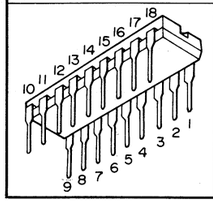
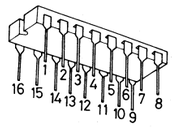
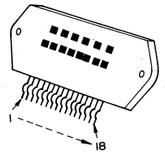
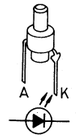
Ref. No.	Part No.	Description
26 ○	SBZ663–1	Holder, Knob (Silver) (3)
26 [K]	SBZ663–2	Holder, Knob (Black) (3)
27 ○	SKCA110E	Cabinet, (Silver) (1)
27 [K]	SKCA110KE	Cabinet, (Black) (1)
28	SMX435	Insulation Plate (1)
29	SJF4431–1	Terminal Board (Speaker) (1)
30 [EX, EH]	SGP3570–1A	Rear Panel (1)
30 [XA]	SGP3570–3A	Rear Panel (1)
30 [XL]	SGP3570–4A	Rear Panel (1)
31 [EX, EH, XA]	SHR127	Bushing, AC Cord (1)
31 [XL]	SHR131	Bushing, AC Cord (1)
32 [EX, EH, XA] S	SJA88	AC Cord (1)
32 [XL] S	QFC1207MA	AC Cord (1)
33 [XA] only	SJS9221	Socket, AC Outlet (1)
34 [EX, EH, XA]	SJF8035–6N	Terminal Board (1)
34 [XL]	SJF8035–7N	Terminal Board (1)
35	SUR145	Bracket, Pulley (1)
36	SUS295–1	Spring, Drum (1)
37	SDD105	Drum (1)
38 [EX, EH, XL]	SKUA110E	Bottom Board, Ass'y (1)
38 [XA]	SKUA110X	Bottom Board, Ass'y (1)
38-1	[SKL245–2]	Foot (4)
39	SJJ71E	Jack, Headphone (1)
40	SHR5243	Spacer (1)
41	SMN1823	Bracket (1)
42 [XL] only	RJT202B	Terminal (1)
SCREWS		
N1	XTBS3+8BFZ1	Tapping with Detent, ⊕3x8 (9)
N2 S	XTB3+8BFZ	Tapping, ⊕3x8 (8)
N3	SHD3X1F–1	Tapping (3)
N4	SHD3X21F–1	Tapping (1)
N5	SHD3x27	Tapping (1)
N6 S	XSS3+6S	⊕3x6 (3)
N7 S	XTN3+8B	Tapping, ⊕3x8 (2)
N8	XTB3+16BFZ	Tapping, ⊕3x16 (2)
N9 S	XTB3+8BFN	Tapping, ⊕3x8 (9)
N10 S	XSN26+5BN	⊕2.6x5 (1)
N11 S	XSN3+8BNS	⊕3x8 (2)
N12 ○	SNE2095–2	Tapping (4)
N12 [K]	SNE2095–1	Tapping (4)
N13	XTBS3+8BFZ1	Tapping with Detent, ⊕3x8 (2)
N14 ○S	XTB3+8BFN	Tapping, ⊕3x8 (2)
N14 [K]S	XTB3+8BFZ	Tapping, ⊕3x8 (2)
N15 [XA] only	XSN3+8S	⊕3x8 (2)

Ref. No.	Part No.	Description
N16 [XL] only	XTB3+8BFZ	Tapping, ⊕3x8 (1)
N17	XTBS3+8BFZ1	Tapping with Detent, ⊕3x8 (1)
N17 [XL] only	XSTS3+8Z	(1)
WASHERS		
N18 S	XWD11B	External Toothed Lock, φ11 (1)
N19 S	XWG3	Plain, φ3 (1)
N20 S	XWA26BFN	Spring, φ2.6 (1)
N21 S	XWC3B	External Toothed Lock, φ3 (2)
N22 S [XA] only	XWG3	Plain, φ3 (2)
N23 S [XA] only	XWA3B	Spring, φ3 (2)
N24 S	XWG3	Plain, φ3 (1)
N25 S [XL] only	XWC3B	External Toothed Look, φ3 (2)
NUT		
N26 S	XNS11	φ11 (1)
ACCESSORIES		
A1	SSA611-1	Loop Antenna (1)
A2	SMA231	Holder, Loop Antenna (1)
A3	SMA233-1	Holder, Loop Antenna (1)
A4	XTN3+10AFZ	Screw, Loop Antenna Holder (2)
A5	SSA269	Cord, FM Antenna (1)
A6	SJP5213–1	Plug Adaptor (1)
A7 [XA] only	SQF11541	Instruction Book (1)
A7 [XA] only	SQF11543	Instruction Book (1)
PACKING PARTS		
P1 ○	SPP699	Polyethylene Bag (Silver) (1)
P1 [K]	SPP649	Polyethylene Bag (Black) (1)
P2	SPS3515–2	Pad, Left Side (1)
P2 [XL] only	SPS3515–3	Pad, Left Side (1)
P3	SPS3517–2	Pad, Right Side (1)
P3 [XL] only	SPS3517–3	Pad, Right Side (1)
P4	SPG4279	Carton Box (1)
P4 [XL] only	SPG4281	Carton Box (1)
P5 [K]	SGK1413	Label (Black Type only) (2)

linavia.
hia, Africa,
America.

Printed in Japan
830104400 Ⓚ SH/TN

● Terminal guide of transistors, IC's and diodes

2SK241	2SC1047, 2SC1685 2SC1675, 2SA992 2SC829, 2SC1815	AN7812	AN7072N	SVINJ4559DDM
				
AN7273	SVIμPC1161C3	SVIK4121–2M	LN846RP LN446YP	
				

■ REPLACEMENT PARTS LIST

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
3. [K] –marked parts are used for black only, while O –marked parts are for silver type only.
4. Part other than [K] – marked O–marked are used for both black and silver type.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
6. The "**S**" mark is service standard parts and may differ from production parts.
7. The parenthesized numbers in the column of description stand for the quantity per set. Black type model No. : SA-110 (K)

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC201	AN7273A	FM IF Detector & AM Converter
IC301	SVIUPC1161C3	MPX
IC401	SVINJ4559DDM	Equalizer Amp.
IC601	SVIK4121–2M	Power Amplifier
IC602	AN7072N	Muting
IC701	SVIUPC7812H	Regulator
TRANSISTORS		
Q201	2SK241–GR	FM-RF Amplifier
Q202 S	2SC1047–D	Mixer
Q203 S	2SC1675–L	FM Oscillator
Q204, 205 S	2SC829–C	FM-IF Amplifier
Q206, 207 S	2SC1685–Q	L.E.D. Driver, Muting
Q601, 602	2SA992	Over Load Detector
DIODES		
D201 S	IS2687AA	FM AFC
D203	LN446YP	L.E.D. Tuning
D301	LN846RP	L.E.D. Stereo
D302, 602~605 S	MA162A	Switching
D601 S	SVDRD8.2EB	Zener, 8.2V
D606, ⚠ S	SVDSR1K2	Rectifier
D607	MA1062M	Zener, 6.2V
D701 ~ 704 ⚠	SVDS2V20	Rectifier
D705	MA1130M	Zener, 13V
COILS		
L201	SLA4N39	FM Antenna
L202	SLD4P71–P	FM Detector
L203	SLQZ12G1–D	Choke
L204	SLO4P121–P	FM Oscillator
L205	SLA2C9–P	AM Antenna
L206	SLO2C33–P	AM Oscillator
L601, 602	SLQY15G–30	Choke
L701	SLQX101–3M	Choke

Ref. No.	Part No.	Description
TRANSFORMERS		
T201	SLI4C539–P	FM IFT
T202	SLI2C139–M	AM IFT
T701 [EX,EH] ⚠	SLT5M275	Power Source
T701 [XL] only ⚠	SLT5M277	Power Source
T701 [XA] only ⚠	SLT5M279	Power Source
CERAMIC FILTERS		
CF201, 202	SVFE107MS2–A	FM, 10.7MHz (Red)
	SVFE107MS2–B	FM, 10.675MHz (Blue)
	SVFE107MS2–C	FM, 10.725MHz (Orange)
	SVFE107MS2–D	FM, 10.650MHz (Black)
	SVFE107MS2–E	FM, 10.750MHz (White)
	(Use pair ranks as same as CF201 and CF202)	
CF203	SVFSFU450B3	AM, 450kHz
VARIABLE RESISTORS		
VR301	EVN75AA00B53	VCO Adjustment, 5kΩ(B)
VR501	EWE00605A15S	Volume Control, 100kΩ(A)
VR502	EVD00305G15S	Balance Control, 100kΩ(G)
VR503, 504	EWD00205C15S	Treble, Bass, 100kΩ(C)
VARIABLE CAPACITORS		
CT201, 204	ECRHA010A11	Trimmer, FM Detector, AM Oscillator

Ref. No.	Part No.	Description
CT202	ECVIZW10X32E	Trimmer, FM Oscillator
CT203	ECRHA007A11	Trimmer, AM Antenna
CV201	SVCCB41T914	Tuning Gang
LAMP		
PL1 ⚠	XAMR78S250	Dial Indicator, 12V, 0.22A
FUSE		
F1 ⚠	XBA2C08TRO	Power Source, 250V, T800mA
F2 ⚠	XBA2C03TRO	Power Source, 250V, T315mA
F3 [XA] only ⚠	XBA2C16TRO	Power Source, 250V, T1.6A
COMPONENT COMBINATIONS		
Z301, 302	EXRP181K473C	180pF, 47kΩ
SWITCHES		
S201	SSH1093	Band Selector, FM/AM
S202	SSH1031	FM Muting/Mode
S401, 402	SSH2051	Input Selector
S403	SSH1091	Tape Monitor
S701 ⚠	SSH1071	Power Source
S702 [XA] only ⚠	ESE37219	Voltage Selector

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1 O	SGWA110M	Front Panel, Ass'y (Silver) (1)
1 [K]	SGWA110KE	Front Panal, Ass'y (Black) (1)
2 O	SGU333	Transparent Plate (Silver Type) (1)
2 [K]	SGU333–1	Transparent Plate (Black Type) (1)
3	SHS2485	Spacer, Power Switch (1)
4	SBC337–1	Button, Power Switch (1)
5 O	SBD69–2M	Knob, Bass, Treble and Balance (Silver) (3)
5 [K]	SBD69–1M	Knob, Bass, Treble and Balance (Black) (3)
6 O	SBD77	Knob, Volume (Silver) (1)
6 [K]	SBD77–1	Knob, Volume (Black) (1)
7 O	SGXA110E	Ornament, Front Panel (Silver Type) (1)
7 [K]	SGXA110KE	Ornament, Front Panel (Black Type) (1)
8	SUS257	Spring, Button (2)
9	SBC423	Button, FM Muting/ Mode and Type Moniter (2)
10 O	SBC529	Button, Input (Silver) (3)
10 [K]	SBC529–1	Button, Input (Black) (3)
11	SUW1985	Bracket, Flywheel (1)
12	SDR3	Pulley (1)
13 S	RDR8–1	Pulley (3)
14	SDT8101–1	Flywheel (1)
15 O	SBN1147–2	Knob, Dial Tuning (Silver) (1)
15 [K]	SBN1147–3	Knob, Dial Tuning (Black) (1)
16 O	SBZ657	Holder, Volume Knob (Silver) (1)
16 [K]	SBZ657–1	Holder, Volume Knob (Black) (1)
17 O	SGX7463	Ornament, Volume (Silver) (1)
17 [K]	SGX7463–1	Ornament, Volume (Black) (1)
18	SUG81	Bracket, Dial Pointer (1)
19	SJT347	Holder, Fuse (4)
19 [XA] only	SJT347	Holder, Fuse (6)
20	SUW1989	Bracker (1)
21	SHR411	Lock Pin (2)
22	SHP59	Spacer, Dial Pointer (1)
23	SDP1167–1	Dial Pointer (1)
24	SDZ051–2	Cord, Dial (180cm)
25 O	SGX7461	Ornament, Knob (Silver) (1)
25 [K]	SGX7461–1	Ornament, Knob (Black) (1)

Ref. No.	Part No.	Description
26 O	SBZ663–1	Holder, Knob (Silver) (3)
26 [K]	SBZ663–2	Holder, Knob (Black) (3)
27 O	SKCA110E	Cabinet, (Silver) (1)
27 [K]	SKCA110KE	Cabinet, (Black) (1)
28	SMX435	Insulation Plate (1)
29	SJF4431–1	Terminal Board (Speaker) (1)
30 [EX, EH]	SGP3570–1A	Rear Panel (1)
30 [XA]	SGP3570–3A	Rear Panel (1)
30 [XL]	SGP3570–4A	Rear Panel (1)
31 [EX, EH, XA]	SHR127	Bushing, AC Cord (1)
31 [XL]	SHR131	Bushing, AC Cord (1)
32 [EX, EH, XA] S	SJA88	AC Cord (1)
32 [XL] S	QFC1207MA	AC Cord (1)
33 [XA] only	SJS9221	Socket, AC Outlet (1)
34 [EX, EH, XA]	SJF8035–6N	Terminal Board (1)
34 [XL]	SJF8035–7N	Terminal Board (1)
35	SUR145	Bracket, Pulley (1)
36	SUS295–1	Spring, Drum (1)
37	SDD105	Drum (1)
38 [EX, EH, XL]	SKUA110E	Bottom Board, Ass'y (1)
38 [XA]	SKUA110X	Bottom Board, Ass'y (1)
38-1	[SKL245–2]	Foot (4)
39	SJJ71E	Jack, Headphone (1)
40	SHR5243	Spacer (1)
41	SMN1823	Bracket (1)
42 [XL] only	RJT202B	Terminal (1)
SCREWS		
N1	XTBS3+8BFZ1	Tapping with Detent, ⊕3x8 (9)
N2 S	XTB3+8BFZ	Tapping, ⊕3x8 (8)
N3	SHD3X1F–1	Tapping (3)
N4	SHD3X21F–1	Tapping (1)
N5	SHD3x27	Tapping (1)
N6 S	XSS3+6S	⊕3x6 (3)
N7 S	XTN3+8B	Tapping, ⊕3x8 (2)
N8	XTB3+16BFZ	Tapping, ⊕3x16 (2)
N9 S	XTB3+8BFN	Tapping, ⊕3x8 (9)
N10 S	XSN26+5BN	⊕2.6x5 (1)
N11 S	XSN3+8BNS	⊕3x8 (2)
N12 O	SNE2095–2	Tapping (4)
N12 [K]	SNE2095–1	Tapping (4)
N13	XTBS3+8BFZ1	Tapping with Detent, ⊕3x8 (2)
N14 O S	XTB3+8BFN	Tapping, ⊕3x8 (2)
N14 [K] S	XTB3+8BFZ	Tapping, ⊕3x8 (2)
N15 [XA] only	XSN3+8S	⊕3x8 (2)

Ref. No.	Part No.	Description
N16 [XL] only	XTB3+8BFZ	Tapping, ⊕3x8 (1)
N17	XTBS3+8BFZ1	Tapping with Detent, ⊕3x8 (1)
N17 [XL] only	XSTS3+8Z	(1)
WASHERS		
N18 S	XWD11B	External Toothed Lock, φ11 (1)
N19 S	XWG3	Plain, φ3 (1)
N20 S	XWA26BFN	Spring, φ2.6 (1)
N21 S	XWC3B	External Toothed Lock, φ3 (2)
N22 S [XA] only	XWG3	Plain, φ3 (2)
N23 S [XA] only	XWA3B	Spring, φ3 (2)
N24 S	XWG3	Plain, φ3 (1)
N25 S [XL] only	XWC3B	External Toothed Look, φ3 (2)
NUT		
N26 S	XNS11	φ11 (1)
ACCESSORIES		
A1	SSA611-1	Loop Antenna (1)
A2	SMA231	Holder, Loop Antenna (1)
A3	SMA233-1	Holder, Loop Antenna (1)
A4	XTN3+10AFZ	Screw, Loop Antenna Holder (2)
A5	SSA269	Cord, FM Antenna (1)
A6	SJP5213–1	Plug Adaptor (1)
A7 [XA] only	SQF11541	Instruction Book (1)
A7 [XL] only	SQF11543	Instruction Book (1)
PACKING PARTS		
P1 O	SPP699	Polyethylene Bag (Silver) (1)
P1 [K]	SPP649	Polyethylene Bag (Black) (1)
P2	SPS3515–2	Pad, Left Side (1)
P2 [XL] only	SPS3515–3	Pad, Left Side (1)
P3	SPS3517–2	Pad, Right Side (1)
P3 [XL] only	SPS3517–3	Pad, Right Side (1)
P4	SPG4279	Carton Box (1)
P4 [XL] only	SPG4281	Carton Box (1)
P5 [K]	SGK1413	Label (Black Type only) (2)

linavia.
hia, Africa,
America.

Printed in Japan
830104400 Ⓚ SH/TN